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Wisconsin Mills Optimistic Over Coming Year

John E. Alexander, of Nekoosa-Edwards Paper Co., Declares Business Already Booked Indicates Marked Improvement—George W. Mead, of Consolidated Water Power & Paper Co., States Operating Conditions Are Considerably Better Than a Year Ago—Frank R. Walsh, of Ahdawagam Products Co., Looks for Betterment

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 3, 1933—On the basis of statements issued by officials of several large paper companies, the outlook for the year 1933 is an encouraging one, with anticipated increases in production.

"I look with confidence to an upturn in the new year," declares John E. Alexander, first vice-president and general manager of the Nekoosa-Edwards Paper Company, Port Edwards, Wis. "January should see a marked improvement in ours as well as all paper mills from purely a seasonal influence, if for no other reason. I see from business already booked that evidence of improvement for the Nepco mills.

"We have now two definite divisions of our business. The coarse paper division under one sales manager and the fine paper division under another sales executive. The coarse papers have long been a staple product of our company while the finer grades are a new line. We are now completely set up in our manufacturing processes to produce in large quantities in our new grades. The new finishing and shipping room of the Nekoosa mill is completed, all construction virtually finished and ready for occupancy. This addition to our facilities will make for more efficient handling of the new products and for better qualities."

Aggressive Sales Campaign

An aggressive sales and advertising campaign, designed to increase sales and the demand for the finer grades of paper is now under way, according to Mr. Alexander. The company has found widespread acceptance in the trade of its newer grades and looks with confidence to good results from the campaign now being launched. Officials and directors feel considerable confidence in the beneficial results from the change in manufacturing policy from an exclusive coarse paper program to a more diversified one afforded by the finer grades. General business conditions and unnatural competition have had their effect on prices, but the company has had the co-operation of its employees in cutting manufacturing costs through wage reductions and other economies and hopes to maintain operating schedules as near normal as possible.

Employees Co-Operating Loyally

Like notes of optimism are expressed by George W. Mead, president of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., who says in a statement:

"As we approach the new year, we are glad to say that our operating conditions are considerably better than they were a year ago. We are not confined to any one grade, as many mills are; on the other hand, we are equipped for the manufacture of many kinds of product, thus making it possible for us to effect a wider reach to all parts of the country. For that reason we are running at a higher capacity than a year ago; in fact, during the past six weeks we have operated almost at full time. We cannot guarantee that this will continue. However, we feel reasonably sure that our operating time for next year will be greater than that of 1932.

"Prices of paper are at a very low level, lower than they were in 1914 when prices were considered very unfavorable. We have been compelled to make two 10 per cent reductions in wages and salaries, however we will maintain the present scale as long as we can, hoping for business recovery. All employees in all departments of our organization are giving their utmost co-operation and effort in meeting the difficulties of this serious economic depression. Our business is not controlled or governed by one man or a few men. We believe that an honest plan of co-operation among all of us is essential in the solution of our problems.

"Consolidated mills are operating on a plan of rotating employment which provides work for many additional men. In a large number of our departments we have introduced the six-hour day for shift workers, and practically all day workers are limited to five days. The program was adopted at the request of our employees, who joined with us in an effort to improve employment conditions as much as possible in the communities where our mills are located."

Outlook for Converting Plants

A like tone of encouragement comes from a converting plant, the Ahdawagam Paper Products Company, Wisconsin Rapids, manufacturers of heavy and light cartons and other board and heavy paper specialties. Frank R. Walsh, general manager, states as follows:

"Our production for 1932 has been running better than we anticipated at the beginning of the year and our tonnage will be approximately the same as 1931, but prices dropped about a year ago and the value will not be as high. Prices

(Continued on page 30)

Howard Smith Paper Mills Report Satisfactory

Earnings of Company Sufficient to Meet Bond Interest for Current Year—Plants Have Operated At Average of 65 Per Cent of Capacity During Last Twelve Months — Demand for Company's Miscellaneous Products Fairly Well Maintained

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., January 2, 1933—Results of Howard Smith Paper Mills, Ltd., for the year just closed, it is reported, show little change from those for 1931, when earnings were reported sufficient to take care of bond interest, depreciation and charges, leaving a small balance applicable to the preferred stock. Bond interest will again be shown fully covered for the current year, it is indicated. Mills have been operated at an average of around 65 per cent capacity during the year, and demand for the company's products, in general, has been fairly well maintained.

Frasers Secure Big American Catalog

Activities of Fraser Companies continue at a relatively low level. Demand for its pulp and paper products from the United States, the company's chief market, is still slow, while low prices for pulp tend to narrow margin of profit on sales in the Eastern Canada division. Operations in the catalog department at Madawaska are reported as satisfactory. A new contract was secured recently which will enable this division to increase its output. One of the most important contracts held by Fraser Companies is one with Sears-Roebuck Company, by which the company supplies the latter with its catalog paper needs. A fact which is expected to reduce production costs in the future is that the company has used up the greater part of its high cost wood and in the future should be able to obtain its supplies at low levels. For manufacture into long lumber next year, a cut of some 10,000,000 feet will be made by Frasers during the winter season which will provide the basis of considerable activity in at least two of the company's saw mills.

H. A. Goldsbrough Returns to England

The Ontario paper trade is about to lose one of its most esteemed members in the person of H. A. Goldsbrough, who for the past ten years has been an active member of the staff of the Hodge-Sheriff Paper Company, selling agents for the Wayagamack Pulp and Paper Company, Three Rivers, Que. Mr. Goldsbrough started his paper career with the Hodge-Sheriff Paper Company in England where he remained three years before coming to Canada to join the Toronto staff of the company. Prior to that he had spent several years at the front with the Royal Engineers, with the rank of captain. In the ten years he has been in Canada he has won the esteem and respect of hosts of men connected with the paper industry and he himself is regretting the severance of business and friendship ties through his departure for his native land. Mr. Goldsbrough states frankly that he was led to a discontinuance of his activities with the old established firm of Hodge-Sheriff through the influence on his life of the Oxford Group Movement, which recently found expression in Toronto through the visit of many followers of the movement. He states that he is being spiritually guided to England where he will engage in business to be conducted on the same religious principles that mark the Oxford Group Movement.

Maclachlan Heads Fraser Companies

The Ontario paper trade was interested in the announcement that K. S. Maclachlan, formerly of St. Catharines, Ont., has been elected president of the Fraser Companies and subsidiaries, in succession to the late Archibald Fraser. For the past two years Mr. Maclachlan has been associated with the companies in the capacity of general manager. Other changes made by the directors include the confirmation of Donald Fraser, a brother of the late Archibald Fraser, as vice-president, a position he has occupied for some time. Two vacancies on the board of directors have been filled by the election of Harold Crabtree, of the Howard Smith Paper Mills, and Lieut.-Col. Robert F. Massie, president of Asbestos Corporation. These men fill the vacancies caused by the death of Mr. Fraser and the resignation of George H. Mead. The latter was head of the company which handled the sale of Fraser Company's products in the United States until the company developed its own sales organization.

Notes and Jottings of the Trade

Steady progress is taking place at the plant of Bartram Paper Products Company, Ltd., Vancouver, B. C. The firm are distributors in British Columbia for the Columbia Paper Company, Ltd., Norfolk Paper Company, Ltd., and the Vancouver-Pacific Company, Ltd. The firm also manufactures its own lines of paper bags, including ordinary and heavy paper bags and sacks and glassine and grease proof, and a number of variety articles. Some specialty bags have been developed. Products of the company are sent to British Honduras, Trinidad, the Barbados, Grenada, Bermuda, Jamaica, British Guiana, Fiji Islands, Kenya Colony and other points, as well as to practically all sections of the Dominion. C. M. Bartram is president of the organization which bears his name.

The Interlake Tissue Mills, Ltd., Toronto, has now been incorporated at Victoria, B. C., as an extra provincial company. According to its registration papers the firm has paid up capital of $625,000, and its registered offices are at 74-78 University Avenue, Toronto. Offices have been opened at 1307 Harewood street, Victoria. The company will engage in British Columbia in the distribution of paper and allied products.

Abitibi Power and Paper Company has applied to the Ontario authorities for an extension of certain driving rights over the rivers emptying into Lake Abitibi. The application is purely formal in its nature. A similar application has to be made at stated intervals in order that the formalities incident to the requisite extension of driving rights may be duly complied with.

The Port Arthur Utilities Commission was this week in receipt of $305,000 from the receivers of the Abitibi Power and Paper Company. The amount covers arrears of power charges contracted for by the Thunder Bay Paper Company, a going concern, stock of which is owned by Abitibi, now in bankruptcy. Under the terms upon which the $305,000 was forwarded to the Commission, a sum of $61,000 will be refunded if the mill in Port Arthur is operated from now until the store of pulpwood in hand is exhausted. It is believed that there is sufficient wood to operate a year.

The Mason Regulator Company of Canada, Ltd., has

donated a new type of temperature and pressure control regulator to the experimental paper mill of the Forest Products Laboratory at Montreal. The new regulator consists of temperature control with pressure compensation. The valve is made of Nirosta KA_2 stainless steel, and will stand up for long service. The regulator and recorder are installed in a gas and waterproof case.

The Wayagamack Division of Consolidated Paper Corporation won the annual safety contest for the paper industry trophy conducted under the auspices of National Safety Council. Spruce Falls mill came fourth in the group of mills employing more than 750 hands.

A. W. P. Comptroller Threatened

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 3, 1933.—Threats on the life of Lafayette C. Reynolds, comptroller of the American Writing Paper Company, Inc., and president of the Holyoke Tax Payers Asociation, have been made in vicious anonymous letters one of which was made public this week in connection with a statement from Sidney L. Willson, president of the American Writing Paper Company. The letter mentioned also threatened his wife and family. Mr. Willson's statement follows:

"Mr. L. C. Reynolds—who is president of the Holyoke Taxpayers Association, Inc., and who is an officer of the American Writing Paper Company, Inc.—has been grossly misrepresented and abused in gossip which has permeated our entire citizenry. So much so, that I feel constrained to make a public statement in this matter. He has been represented as a wage 'cutter' or 'slasher.' The fact is, he did not advocate either of our cuts in wages. These were put into effect without his even being a party to such action. His salary has been grossly misrepresented and he has taken the greatest *percentage* of salary reduction of any employee of the company excepting myself. His latest and fourth salary cut was a voluntary suggestion on his part in recognition of the sacrifices our wage earners were making due to their lessened hours of work. He has been a foremost advocate (even nationally so' of the idea of 'spreading the work' and we have both been cooperating to carry out this idea without closing any more mills of the A. W. P. and throwing more wage earners out of work. As stated in my last published letter regarding wage and salary reductions—those reductions were made to avoid dismissing a large number of salaried help and to avoid closing more mills. And our citizens should not forget that we carried our rehabilitation work through to its conclusion, a full year after the depression started, thereby giving work to many men; and that the engineering ability of Mr. Reynolds made possible the moving of our two Connecticut mills into Holyoke during 1930, making practically two new industries for our city.

"In Holyoke there seem to be developing individuals or groups who are endeavoring to establish and maintain their aims by creating 'Fear' and who are using threats of various kinds. Ever since the Tax Association was formed, there have been veiled and open threats of boycotts made to various merchants. In addition to those general threats, anonymous letters have been received both by Mr. Reynolds and myself. And recently one received by Mr. Reynolds threatens his life, and even threatens members of his family. A careful reading of that letter indicated some things about its author that warranted more than the usual attention. First: It was obvious from the letter that the writer had been affected by the forced economies of the depression and may become increasingly so affected. Second: The statements of those versed in penmanship together with the context of the letter indicated that the writer is a man. Third: It was also deductible from the letter that the writer has children in his family. Fourth: It was also apparent that the writer is a modest home owner (a small taxpayer) to whom a reduction in taxes would be of no advantage because his income would be thereby involved to a greater extent. Fifth: It was clear to us that the writer was basing his statements on gossip only, as none of the salary figures even nearly represented the facts existing. And, Sixth: The construction and handwriting of the letter made it obvious that the writer is an unusually well educated individual, making the scurrilous attack all the more culpable. I consider it my duty to the citizens of Holyoke and in justice to Mr. Reynolds to publish that letter, with the highly obscene and blasphemous language deleted, and to state that investigation is now being vigorously conducted."

L. W. Shugg Heads Exhibitors Committee

At the annual meeting of the board of directors of the Exhibitors Committee Industrial and Power Shows, Inc. just held, the following officers were elected for 1933: President, L. W. Shugg, General Electric Company, Schenectady; vice-president, C. F. Radley, Oakite Products, Inc., New York City; secretary, H. N. Shackleford, Johns-Manville Corporation, New York City; treasurer, J. P. Ferguson, Reading-Pratt & Cady, Inc., Bridgeport, Conn.; assistant secretary, W. A. Hemming, Exhibitors Committee, New York City.

The Exhibitors Committee, a non-profit organization, has just completed its sixth year of work in furnishing a large number of manufacturers who exhibit with worthwhile information concerning all of the larger industrial and trade shows scheduled each year. This information, issued in the form of status reports on each show, is made available to the membership and has proven extremely helpful in assisting manufacturers in their exhibition work. The headquarters office of the committee are maintained at 330 West 42 Street in New York City.

Among the directors who will preside over the twelve industrial groups for 1933 are W. W. Bertram, Sales Manager, Morse Chain Company, Ithaca, N. Y.; L. W. Shugg, General Electric Company, Schenectady, N. Y.; H. S. Wheller, vice-president, L. J. Wing Manufacturing Company, New York City; J. F. McNamara, Sales Manager, International Nickel Company, New York City; H. M. Hammond, Sales Manager, Bailey Meter Company, Cleveland, Ohio; J. P. Ferguson, Reading-Pratt & Cady, Inc., Bridgeport, Conn.; F. C. Eibell, publicity manager, Worthington Pump & Machinery Corporation, Harrison, N. J.; E. J. Billings, executive assistant, The Babcock & Wilcox Company, New York City; F. Page, Publicity Director, Foster Wheeler Corporation, New York City; H. N. Shackelford, Johns-Manville Corporation, New York City; C. F. Radley, Publicity Director, Oakite Products, Inc., New York City and N. O. Wynkoop, publishing director, *Power*, McGraw-Hill Publishing Company, New York City.

Eastern Specialties Co. Hammermill Agent

The Hammermill Paper Company, of Erie, Pa., announces the appointment of the Eastern Specialties Company, Holyoke, Mass., as a source of supply for Hammermill agents only, for roll specialties made from Hammermill watermarked paper, and for Hammermill index cards in standard cut sizes made from Hammermill bristol.

Pennsylvania Mills Prepare for New Year

Prevailing Activity Consists More In Renovations, Alterations, Etc., Than In Production—Fine Paper Market Quiet, Due Mainly to Broken Holiday Week—While Coarse Paper Section Was Dull, Outlook for Future Is Considered Brighter

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 2, 1933—The holiday week, closing the business career of 1932, quite lived up to its expectations of dragging sales but of more or less activity in mill circles, and in so far as the mills are concerned their activity was more in renovations, alterations and the like, in preparation for the New Year, than in production. However, they are looking forward with entire confidence, firmly convinced that bottom levels have been passed over.

In the fine paper division the quiet trade of the holiday-broken week gave some opportunity for a review, and while it cannot in truth be said that the year's experience has been such as to cause rejoicing, the absolute fact still remains that while the profit side of the ledger is not enthusing there is to be found consolation in the loss side because of the closer relation of the trade itself, as well as because of the intimate contact which exists in Philadelphia, perhaps, to a greater extent than any other city, with the organization of the master printers—the Typothetae of Philadelphia—losses in bad credits show a decline from that of the preceding year; in fact they now constitute a small factor in the situation.

Most printers of the reputable kind, long ago sensed the fact that if credit were not extended to the irresponsible, it would redound to the benefit not only of the paper trade but of themselves as well, by the elimination of unfair competition which was very much more noticeable during 1931 than it was during 1932. In other words, in the City of Brotherly Love there is really the kindest realization that while printers have their problems and the paper dealers theirs, in many cases these run along parallel lines and each can be mutually beneficial to the other.

In the coarse paper division, while the week was dull, there is even more confidence in what the turn of the year will bring with it than there is in the fine paper division. Announcement made by one large kraft paper concern that beginning January 1 its line would be advanced ½ cent, was received with much satisfaction. Again contacts which the coarse paper division have with the great manufacturing industries of this World's Workshop have been encouraging, almost inspiring; in the leather industry quite a large consumer had for a long time been most flat but there has been a decided revival here, and commitments are being made in anticipation, because of the feeling that necessity for wrappings and kraft will exist, and that at present low price levels the time to buy is now.

Sylvester S. Garrett Optimistic

Typical of opinions in the coarse paper trade is that given by Sylvester S. Garrett who said: "Admitted that prices are low and competition is gone and that there has been in recent months considerable price cutting, the fact still remains that we are quite as well if not a little better off this year than we were last, and that the past December will compare favorably with the corresponding season of last year. In my own particular business, December of this year exceeded even February of last year."

The paper stock market was typically dull because mill demand in this week of the usual close down for repairs—augmented undoubtedly by lack of orders as well—was very quiet indeed. There has been no accumulation despite negligible shipments, and prices are still steady to firm. Since, in trade opinion, they are at their rock bottom now, not much consolation is found in the fact that they remain unchanged.

News of the Trade

In wishing its patrons the compliments of the season, Dill and Collins, who have for sometime been operating under receivership, make an announcement that implies that this period is now over and that henceforth under the slightly changed name of Dill & Collins, Inc., its business will continue as of old and with the same personnel.

Frank A. O'Neill, Sr., of the Paper Manufacturers, Inc., has developed and put on the market an extra strong super bond gummed product, known as No. 102-A. They have had a number of repeat orders on this and are daily in receipt of highly complimentary letters with regard to the strength and durability of this new No. 102-A.

We regret to again report that B. M. Thomas, general manager of the Container Corporation, has been incapacitated on account of an infection in his leg. Mr. Thomas is, however, expected to be back at his desk immediately following New Year's Day.

R. A. North Joins Farrel-Birmingham

Farrel-Birmingham Company, Inc., Ansonia, Conn., announces the appointment of Richard A. North as Assistant Chief Engineer. To his new post Mr. North brings a diversified experience in various phases of mechanical engineering and industrial management acquired in several years of collegiate teaching and in connection with prominent firms in the manufacturing and transportation fields.

Born in New Haven, Conn., he attended the public schools of that city and prepared for college at the Hotchkiss School, Lakeville, Conn. After his graduation from Sheffield Scientific School of Yale University he entered the Research Department of the Barrett Company, Edgewater, N. J., as research engineer. A year later he returned to Yale University as instructor in mechanical engineering and also to do graduate work, for which he received the degree of Mechanical Engineer. He continued on the teaching staff for six years, handling courses in mechanical technology, mechanisms, hydraulic machinery, industrial heating, mechanical processes and industrial management.

During earlier summers and permanently from June, 1927, to April, 1931, he was employed by the Merchant Fleet Corporation, United States Shipping Board as Senior Engineer; first with the Fuel Conservation Section and, subsequently, in the Technical Division of the Maintenance and Repair Department. From April, 1931, to September, 1932, he served as Technical Assistant to the Vice President in Charge of Operations, of the Grace Lines, Inc., severing this connection to join the Farrel-Birmingham Company, Inc.

Mr. North is a member of the American Society of Mechanical Engineers, the Yale Engineering Association, and the honorary societies of Sigma Xi and Tau Beta Pi. He now makes his residence at Ansonia.

Chicago Paper Market Rules Seasonably Dull

Trading During Past Week Exceptionally Quiet, Due to Uncertainty of Business Future—Fine Paper Section Listless, With Quotations On Various Standard Grades Unchanged—Kraft Wrapping Paper Supplies Moving Into Consumption Slowly

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 31, 1932—A very quiet and, in spots, sagging market, is reported in Chicago paper circles this week. The period between Christmas and New Year, generally dull, is doubly so because of uncertainties concerning the business future. Some reports indicate that the possibilities for any appreciable upturn in the general paper market cannot honestly be looked for prior to March 1, though some specific lines may find more encouragement—seasonally and because of primary improvement in the fields they supply.

The brightest spot in the picture, locally, is the growing interest in the paper exhibit at the Century of Progress Exposition which seems bound to stimulate a wider consumption of and interest in paper products. At the same time, considerable satisfaction is evidenced over new uses being found for paper products which are the results of some thorough investigation and excellent selling on the part of various units of the paper industry.

Specifically, there seems little to choose between all the lines as to market conditions. Fine papers remain quiet with the market unchanged. Kraft papers are slow and the jobbing business here is having difficulty finding markets, particularly after the holiday season. Books and covers remain unchanged. Paper board products are still slightly better than the average, say reports, due to the Fall spurt which is carrying over, though much abated, into the winter months. Ground woods are dull. News print is finding some optimism in reports of increased advertising lineage, though the market is quiet. The waste paper market is reported practically stationery.

Tissue Paper Men to Meet

An important meeting of manufacturers of toilet paper and paper towels and a committee from the Chicago Paper Association, coarse paper group in Chicago, is to be held at the offices of the Hanchett Paper Company at 2:00 P.M. on the afternoon of Wednesday, January 4. The meeting, called by J. S. Danehy, secretary-treasurer of the Chicago Paper Association, is to be held with the purpose of planning a program for the sale of toilet paper and towels in the city of Chicago that will work out "to the advantage of both the mills and jobbers selling in this territory," as so worded in the announcement which was mailed out to thirteen manufacturers and to interested parties within the Chicago Paper Association.

The meeting, says the announcement, is being held with the knowledge and approval of the National Paper Trade Association and it is expected that results will be sufficiently constructive to have a beneficial effect on the entire industry. The Chicago Paper Association members who will be present include Leo S. Altholz, Inlander Steindler Paper Company, Earl Beier, Beier & Co.; J. S. Danehy, Schwarz Paper Company; M. A. McNulty, McNulty Paper and Twine Corporation; D. F. Peck, Hanchett Paper Company and J. D. H. Murphy, Commonwealth Paper Company. The manufacturers invited to send representatives to attend the session include the A. P. W. Paper Company, Continental Paper and Bag Corporation, Fort Howard Paper Company, Freeman Paper Company, Hoberg Paper and Fibre Company, Morgan Paper Company, National Paper Products Company, Northern Paper Mills, A. W. Mendenhall Company, Straubel Paper Company, Scott Paper Company, Victoria Paper Mills Company, and the White Washburn Company.

Work of Paper Foundation

Latest reports from the offices of the newly created Paper Foundation, with offices at 111 West Washington street, state that a conference of the board of directors will be called to be held in Chicago on Friday, January 6. Phil Howard, the managing director of the organization designed to spur to completion plans for a worthwhile paper exhibit at the Century of Progress Exposition, will have much concrete information to give to the directors including a well worked out and exceedingly fair program of financial support which should appeal to every branch of the paper industry. Mr. Howard will also be able to report almost unanimous interest and support from those with whom he has already contacted relative to the proposed exhibit.

The board of governors meeting in Chicago next week is composed of H. R. Knott, Salesmen's Association of the Paper Industry; Allen Abrams, Technical Association of the Paper and Pulp Industry; A. C. Gilbert, American Paper and Pulp Association; W. N. Gillett, Western Paper Merchants' Association; D. F. Peck, Chicago Paper Association, and Fred C. Boyce, American Pulp and Paper Mills Superintendent's Association.

Meanwhile, the general program has gone ahead in speedy fashion. New letter heads have been printed bearing the name of the Paper Foundation and the board of governors listed thereon. A cut illustrating the theme of the Century of Progress adds to the appearance of the new correspondence form. On these letter heads are going appeals for support from all associations actually identified with the paper industry, in the belief that a great deal of costly preliminary work can be done away with if the associations, in turn, will bulletin their entire membership asking for moral and financial support. Early returns, says Mr. Howard, are encouraging.

News of the Trade

The Cromwell Paper Company provides a more encouraging outlook for at least one branch of the paper industry with the addition of a modern and efficient one story building to its manufacturing unit at 4801 South Whipple street, Chicago. Long known as manufacturers of tympan paper specialties, the Cromwell organization will utilize its new addition to make shipping bags of all kinds and descriptions and other specialties for a wide variety of uses. The new addition is 200 by 275 feet in dimensions and is installed with the latest type of machinery for both hand and machine manufacture of large and small paper bags.

Jack Burrus, Albermarle Paper Company representative in this territory, has been in the East during the entire holiday week visiting the mills at Richmond, Va. Mr. Burrus was accompanied on the trip by his family and is making a combined business and pleasure trip out of the seven day jaunt. He is expected back in Chicago immediately after the first of the year.

Canada to Expand Pulp Exports to Germany

Temporary Trade Agreement Expected to Increase Market for Wood Pulp Approximately $1,000,000 Per Annum—Definite Treaty Between Two Countries to be Concluded Before March 31—Expansion of Pulp Wall Board Exports Anticipated

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 3, 1933—By a three-months' temporary trade agreement between Canada and Germany, an enlarged market for Canada's wood pulp and pulp wall board has been secured in Germany. Under the agreement all Canadian goods, for the first time in 35 years, will be accorded most favored nation treatment by Germany. Canade in return grants the intermediate tariff on German goods. A definite treaty is expected to be concluded between the two countries before March 31. A vast increase in many exports to Germany from this country is forecast as a result of the new convention. The increase which is expected in the market for wood pulp is estimated at $1,000,000 per annum, and pulp wall board is expected to find an important new market. On wood pulp the rates vary, according to mechanical, chemical and moisture content, from 1.15 to 2.25 marks per 220 lbs. Formerly they have been from 3 to 4 marks. On pulp wall board the new rate is 2.25 marks per 220 lbs., as against the previous rate of 4 marks.

Orange Wrappers for Jamaica

An order for 6,000,000 paper wrappers for oranges to be made in Montreal by January 15 has been placed by the Jamaica Citrus Producers' Association. F. E. Holloway, representative of the association, in making this announcement in Montreal, drew a picture of British West Indies oranges wrapped in Canadian-made wrappers, packed in boxes made from Canadian manufactured shooks, transported by Canadian National Steamship vessels and distributed to Canadian cities by Canadian railways. He said he knew of no other dollar spent on imports that "stayed so much in Canada" as the dollar spent on Jamaica oranges. A Montreal factory will work day and night till the wrappers are ready for shipment to Jamaica. Each one bears the name "Jamaik Brand." Other Canadian factories are busy making the shooks.

Pulp and Paper Exports

Detailed particulars supplied by the Dominion Bureau of Statistics show that the total export of news print, wood pulp and screenings from Canada during November last was 4,073,981 cwt., valued at 8,445,126. This volume exceeded that of October and closely approached the figures for November of last year.

The export of wood pulp and screenings in November amounted to 1,002,605 cwt., valued at $1,813,885, which was greater than the October export and almost up to the quantity in November last year. The value sent to the United States was $1,618,663, Japan $41,825, Germany $35,203, United Kingdom $33,628, Italy $30,779.

The export of news print in November totalled 3,071,376 cwt., valued at $6,631,241, which was larger in volume than the October export of 2,978,691 cwt., but lower in value, the latter being $6,754,504. The November export a year ago was 3,423,021 cwt., valued at $8,801,532. The 12 months' export was $6,032,101 cwt. valued at $85,598,836 compared with 41,438,026 cwt., valued at $111,403,603 in the previous 12 months.

The value of the November export to the United States was $6,078,162, United Kingdom $187,323, Australia $108,369, China $75,312, Japan $53,756, Argentina $46,831, British South Africa, $29,576, New Zealand $19,733, Hawaii $6,131.

Boston Paper Market Quiet

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 2, 1933—The last week of the year, with inventories being taken, normally quiet, ran true to form. With some merchants, at least, it was quieter than usual. A number of orders, however, were placed, with buyers to be billed after the first of the year. These orders, together with a sizable amount of inquiries relating to prospective business after January 1, are encouraging to the trade. Printers are preparing for work contingent on advertising campaigns of their customers and there is a fair amount of business in the offing for fine paper distributors. Wrapping paper dealers are hopeful for more orders, with a greater demand from a number of industries anticipated. Box coverings moved rather well the last month or so.

There is a better feeling in the box board market, with prices holding very strong. The recent improved demand for folding boxes has had a healthy influence on the trade. Last week, however, there was a temporary lull, with a number of mills closed. It is said that a number of mills will not operate on full schedule the coming week, although one large board mill is reported to have a large volume of orders ahead, enough to keep it operating for at least two weeks.

The paper stock market was quiet, with many consuming mills closed. The leather board mills have been experiencing dull business on account of the shut-down of many shoe factories, but with the new year begun it is expected that there will be an improvement in that direction. The situation among the fine writing mills continues dull, with factories working only part time and orders for rag stock difficult to obtain. Mixed strings are selling at the lowest price in history, it is stated in the trade, one small lot having changed hands recently at 25 cents per hundred pounds. Attempts are being made to stimulate business on bagging. Domestic gunny at New England mills is reported to have been sold for .50 to .55 per hundred pounds, and scrap burlap at .55 to .65.

Wage Agreements Extended in Sweden

WASHINGTON, D. C., January 2, 1933—Commercial Attache T. O. Klath at Stockholm reports that a large number of current wage agreements in Swedish industry were extended automatically for the year 1933 as neither employers nor workers gave notice of cancellation. The important wood pulp and sawmill industries were among those to prolong the current agreements, neither side having given any notice of cancellation by October 31. This assures competitive labor peace during all next year in all the important industries. That none of the agreements were cancelled by the employers would seem to indicate that industrial leaders believe there will be no marked improvement in the position of the Swedish crown for some time to come.

Glazed and Fancy Paper Men Meet

The Glazed and Fancy Paper Association held its regular December meeting at the Hotel Commodore, New York City, Wednesday, December 14. Twenty-nine persons were present representing fifteen member companies.

After the usual luncheon President MacLaurin of MacLaurin-Jones Company introduced Arthur S. Allen, well known color and design counselor. Mr. Allen had arranged an exhibit and proceeded to explain the Munsell system of handling colors. Prior to the meeting he had covered boxes with papers supplied by various members. These color designs were analyzed and by means of revolving discs Mr. Allen showed which ones gave favorable results in the revolving tests. Those present whose papers were tested were not wholly surprised when the tests showed unfavorable to hear Mr. Allen say that in all probability the paper had proved to be a poor seller. Mr. Allen's talk was most valuable as was proved by the large number of questions which followed the address.

Prior to the meeting the executive committee had held a session and had voted that their secretary be made in fact an executive secretary to act as manager of the association with full power to do everything possible for the benefit of the association and its members. Budget and dues for 1933 were decided upon.

President MacLaurin has appointed John B. Van Horn chairman of the nominating committee to report at the annual meeting in February.

Various problems of the industry were discussed at the meeting. E. W. Zentgraf of Louis Dejonge & Co., as chairman of the Trade Customs Committee presented a carefully prepared report having to do with the problem of price differences for various quantities. He showed that many price schedules in use did not have enough difference in price between large quantities and small quantities. The seller was penalizing himself by not getting enough for small quantities to carry the cost of filling small orders; at the same time he was not making large enough price differential on large quantities to promote purchases of larger quantities. His report was gratefully accepted and it was voted that the members and secretary cooperate to promote revising price schedules to reflect this need of larger prices for small orders and smaller prices for large orders. When this plan is in more universal operation it will be of benefit to both the selier and the customer.

The next meeting will be held Friday, February 17, at the Hotel Commodore. This is the day following the A. P. & P. A. convention and is deliberately so planned in order that members can attend various meetings of this convention and then have their own meeting free from conflicts.

Glens Falls Forms Economic Council

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., January 3, 1933.—A meeting of prominent manufacturers was held during the week at which plans for forming a Saratoga County branch of the New York State Economic Council were made. Thomas A. Stirling, general manager of the West Virginia Pulp and Paper Company, presided and appointed a committee to complete organization. The gathering was addressed by Merwin K. Hart, president of the Council, who declared that the present general trend of government can result only in further blows at industries in the state and pointed to the recent departure of a large concern from Syracuse to Michigan. He blamed heavy taxation for this move which he claimed makes competition with neighboring states impossible.

Dr. Langmuir Awarded Nobel Prize

The Nobel Award in Chemistry for 1932, the greatest recognition that any scientist can receive, was presented to Dr. Irving Langmuir, associate director of the General Electric Research Laboratory, in Stockholm on December 10.

Dr. Langmuir is the second American chemist to have been honored by the Swedish Academy of Science in 31 years. Dr. T. A. Richards, in 1914, was the only other American so honored. Other nations have produced Nobel prize winners in chemistry more frequently since the various Nobel prizes were created by the will of the late Alfred B. Nobel, Swedish scientist. Germany has seen 14 of her scientific men thus honored; England, five; France, four; Sweden, three; and Switzerland, Austria and Denmark, each one.

To Dr. Langmuir the Nobel award is a distinctive honor among many previous honors. He has the Nichols medal, twice awarded to him by the New York section of the American Chemical Society—in 1915 for his work on atomic structure. He received, in 1918, the Hughes medal from the Royal Society of London in recognition of his researches in molecular physics. The American Academy of Arts and Sciences in 1920 awarded him the Rumford medal for his thermionic researches and his gas-filled incandescent lamp. The Royal Academy of Lincei, at Rome, Italy, in 1925 bestowed upon him the Cannizaro prize; in 1928 he was recipient of the Perkins medal; and in 1930 the Chandler medal. This year the Popular Science Monthly awarded him its annual medal and honorarium of $10,000 as an American who has done notable scientific work.

He is a past-president of the American Chemical Society and has numerous honorary degrees.

Container Group Reorganization Planned

At the meeting of the Container Group of the Paperboard Industries Association held in New York City, November 16, 1932, a committee consisting of M. M. Madson, chairman; R. H. Dollison and J. B. Fenton, was empowered to proceed as they considered best with a view to submitting a definite plan for reorganization of the Container Group, Paperboard Industries Association. This committee has been giving thorough consideration to this important subject and has prepared a suggested plan for reorganization.

In the belief that the subject should be carefully considered at an open meeting of the container industry, a meeting has been called to be held in room 1164, Congress Hotel, Chicago, commencing at 9:30 A.M., January 19.

All manufacturers of corrugated and solid fiber containers are urged to attend this meeting and to participate in the deliberations which, it is hoped, will result in the formation of a group, or groups, of container manufacturers, so organized as to result in the greatest possible benefit to the container industry and the users of its products.

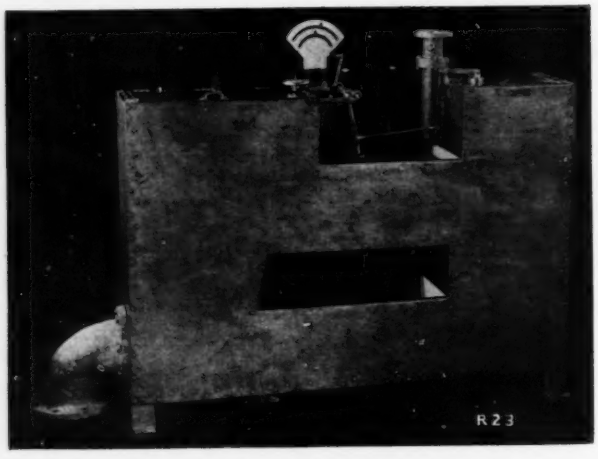
J. H. Giles With Brown-Bridge Mills

TROY, Ohio, January 3, 1933—The Brown-Bridge Mills announces that J. Harvey Giles will fill the vacancy occasioned by the resignation of C. D. Geisinger. Mr. Giles will act in a sales capacity in the middle west. Over the past fifteen years he has had thorough experience in sales work. As an executive of the Richardson Paper Company and the Reynolds Metal Company he has made friends in the trade who will be interested in knowing of his new connection.

Improved DeZurik Regulator

Manufactured by the DeZurik Shower Company, of Sartell, Minn., the Improved DeZurik Stock Consistency Regulator controls and indicates the consistency of pulp and paper stock accurately, continuously and without the use of power-driven mechanism. It works as follows:

Flowing stock entering the Regulator causes a frictional pressure to be exerted against a feeler or detector. This frictional pressure varies according to the consistency of the flowing stock. A water valve is directly connected to the feeler or detector and its opening varied by the changes in stock consistency. After addition of the dilution water the stock is mixed in a gravity mixing chamber



DeZurik Regulator

from where it flows to a second detector. This second detector indicates the consistency of the outgoing or regulated stock.

The DeZurik Regulator is adaptable for use wherever paper or pulp stock consistency is to be kept constant. In the pulp mill it can be used on either mechanical or chemical pulp of almost any degree of freeness or slowness.

In the paper mill it will handle almost any furnish, or the individual stocks of the furnish, as in conjunction with a proportioning and metering system. It keeps stock at uniform consistency continuously and with an absolute minimum of attention and maintenance.

The DeZurik Regulator is now being used by more than a score of representative mills making all grades, some of whom have had it in operation for more than ten years. Basically correct principles of design and operation are combined with highest quality construction to give accurate, trouble-free and lowest cost stock consistency regulation.

Census of Paper Boxes, 1931

The Bureau of the Census announces that, according to a preliminary tabulation of data collected in the Census of Manufactures taken in 1932, the value of paper and paperboard boxes and other containers produced in the United States in 1931 by establishments engaged primarily in the manufacture of this class of containers amounted to $209,368,539 (at f.o.b. factory prices), a decrease of 26.3 per cent as compared with $284.172,992 reported for 1929, the last preceding census year. The items which make up the total for 1931 are as follows: Corrugated shipping containers. $65,238,654; solid-fiber shipping containers, $16,372,426; cartons and folding boxes, $53,563,137; set-up paper boxes, $59,200,012; paper cans, $10,427,678; decorated, lithographed, lacquered, and fancy covered boxes, $2,821,082; other boxes and those not reported by kind, $1,745,550.

In addition, paper boxes are made to a considerable extent as secondary products by establishments engaged primarily in other lines of manufacture. The value of these commodities thus made outside the industry in 1929 amounted to $62,273,966, equivalent to 21.9 per cent of the value of such products made in the industry. The corresponding figure for 1931 is not thus far available but will be given in the final report of the present census.

This industry, as defined for census purposes, embraces establishments engaged in manufacturing plain and metal-edged boxes of paper, of news board, or of cardboard.

Statistics for 1931, with comparative figures for 1929, are given in the following table.

SUMMARY FOR THE INDUSTRY: 1931 AND 1929

	1931	1929	Per cent of decrease
Number of establishments	1,211	1,249	— 3.0
Wage earners (average for the year) [1]	46,538	55,654	—16.4
Wages [2]	$43,887,296	$57,109,700	—23.2
Cost of materials, fuel, and purchased electric energy [3]	113,081,792	159,839,577	—29.3
Products, total value [3, 5]	217,277,214	294,253,296	—26.2
Boxes, paper, total [4]	$209,368,539	$284,172,992	—26.3
Shipping containers:			
Corrugated	$65,238,654	$81,151,559	—19.6
Solid-fiber	16,372,426	28,304,431	—42.2
Cartons and folding boxes	53,365,137	69,905,559	—23.4
Set-up paper boxes	59,200,012	84,134,896	—29.6
Paper cans	10,427,678	11,503,294	— 9.4
Decorated, lithographed, lacquered, and fancy covered boxes	2,821,082	6,600,125	—57.3
Other boxes and boxes and containers not reported by kind	1,745,550	2,573,128	—32.2
Other products	7,908,675	10,080,304	—21.5
Value added by manufacture [5]	104,195,422	134,413,719	—22.5

[1] Not including salaried officers and employees. The average number of wage earners is based on the numbers reported for the several months of the year. This average probably exceeds somewhat the number that would have been required for the work performed if all had been continuously employed throughout the year, because of the fact that manufacturers report the number employed on or about the 15th day of each month, as shown by the pay rolls, usually taking no account of the possibility that some or all of the wage earners may have been on part time or for some other reason may not actually have worked the entire month. Thus it becomes necessary to give equal weight to full-time and part-time wage earners in calculating the average and therefore the average may overstate somewhat the amount of full-time employment. For this reason the quotient obtained by dividing the amount of wages by the average number of wage earners can not be accepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1931 and 1929, the possibility that the proportion of part-time employment was larger in one year than in the other should be taken into account

[2] Manufacturers' profits can not be calculated from the census figures because no data are collected for certain expense items, such as salaries, interest on investment, rent, depreciation, taxes, insurance, and advertising.

[3] For 1931, production; for 1929, sales (shipments or deliveries) by manufacturers.

[4] See second paragraph of text.

[5] Value of products less cost of materials, fuel, and purchased electric energy.

Making Paper in London Streets

Paper was recently made in the streets of London. While this is the second occasion that this paper making exhibit has formed part of the Lord Mayor's Show, interest was even greater than previously. A brief and excellent description of the process that was pursued was printed in one of the London dailies as follows:

"Paper and print formed a conspicuous section of the Lord Mayor's Show last Wednesday, as a compliment to the new Lord Mayor, Sir Percy W. Greenaway. For the second time Eynsford Mill was responsible for the making of paper by hand in the streets of London, following the example of the late Sir William Waterlow's procession in 1929.

"The car represented several of the operations carried on at Eynsford, among them being women cutting and sorting rags; beating rags to a pulp; vatman making paper, also couching, hand pressing, man hanging paper on trebbles, woman over-looking paper before finishing, counting, and packing paper into reams."

Obituary

Allan M. Jack

LOCKPORT, N. Y., January 2, 1933—Allan M. Jack, 59 years old, for more than forty years associated with the Lockport Paper Company of this city, and the Ohio Paper Company of Miamisburg, Ohio, serving both industries as superintendent, died December 26 at the home of his sister, Mrs. J. Elton Perry, 248 Niagara street. He had been ill since last June.

Born in Adric, Scotland, in 1873, Mr. Jack came to this country when ten years old with his parents, the late Archibald and Mary Wall Jack, the family first settling in Holyoke, Mass. Later they came to Lockport and at the age of seventeen Mr. Jack went to work for his father in the Lockport Paper Company, continuing with that concern until five years ago, when he resigned as superintendent to go with the Ohio Paper Company at Miamisburg. He left the latter concern when his health failed him early last summer.

Mr. Jack was a member of Lockport lodge, 73, F. and A. M., and Lockport lodge, 41, B. P. O. Elks. He is survived by his wife, Melissa Liscombe Jack; a son, Wallace Jack, Lockport; a brother, John M. Jack, Minneapolis, Minn., and two sisters, Elizabeth Jack and Mrs. Perry Lockport.

Maurice A. Duffy

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 2, 1933—Maurice A. Duffy, for 53 years with the Tileston & Hollingsworth Company, Mattapan, and long a leading figure in the civic life of Milton, Mass., died December 31 at his residence, 115 Blue Hills Parkway. Mr. Duffy was born in Dorchester, March 16, 1861, the son of Bernard and Johanna Duffy. The family removed to Milton when the son was in his early years. He was educated in the public schools of that town. He entered the employ of the Tileston & Hollingsworth Company and continued with the concern. For twenty-one consecutive years Mr. Duffy had been a member of the board of selectmen of Milton, at one time its chairman, and at the time of his death he was town treasurer, an office he had held for the last ten years. He was a member of Mattapan Council of the Knights of Columbus, the Quincy Lodge of Elks, the Wampatuck Golf Club in Canton and the Four Club of Milton, and a director in the Dorchester Savings Bank.

He is survived by a wife, two daughters, a son and two brothers.

Michael Herb

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 2, 1933—Wisconsin's old-timers in the paper industry have received word of the death December 20 of Michael Herb at Portland, Oregon at the age of 49. He was superintendent of the Columbia River Paper Mills, Vancouver, Wash. Mr. Herb was connected with Wisconsin mills until his departure for the west about twenty years ago. He was employed for a long period with the Thilmany Pulp and Paper Company, Kaukauna, Wis.

William May

LEE, Mass., January 2, 1933—William May, aged 85, died December 18, at the home of his daughter, Mrs. H. Archer Clark on Park place. He was born in Lee, August 30, 1847, the son of Edward and Emmelie (Ferry) May, and received his education in the schools of the town. He was a member of the First Congregational church of Lee and of the Park club of Pittsfield.

Mr. May was a paper manufacturer and for 35 years was connected with the Eaton-Dikeman Company. He married Miss Elizabeth Rice, November 22, 1871, and she died in 1910. He leaves three daughters, Mrs. William Foster Rice, of Jamaica Plains, N. Y.; Mrs. Charles Peck, of Suffern, N. Y.; and Mrs. H. Archer Clark of Lee, and two sons, Edward A. May of Nutley, N. Y., and Charles C. May of New York city; eight grandchildren and six great-grandchildren.

James R. Walker

MONTREAL, Que., January 3, 1933—The death is announced of James Robert Walker, president of J. R. Walker & Co., Ltd., paper stock manufacturers, Montreal. Mr. Walker, who was in his 83rd year, with a partner founded the business of which he was head, this firm operating paper mills at Sault aux Recollet, also carding mills at Cote, St. Paul.

In addition to his own business Mr. Walker was actively identified with the Back River Power Company, the South Shore Lumber Company, the Gambo Lumber Company, Newfoundland, St. Lambert Securities Corporation, Montreal Blanket Company, of all of which he had been president; he was also vice-president of the Canadian Paper Board Company, and director of Blaiklock Bros.

Mrs. Georgia B. Bullock

APPLETON, Wis., December 27, 1932—Mrs. Georgia B. Bullock, the second woman licensed to preach by the Methodist Episcopal Church, was buried at Forest Home Cemetery in this city, this afternoon. Mrs. Bullock died Thursday, December 22, at the home of her daughter, in Mason City, Ia., and brief services were held both at Mason City and Appleton. She was the mother of Warren B. Bullock, of New York, manager of the Import Committee of the American Paper Industry; Miss Mary C. Bullock, of Mason City, Ia.; Major Harley B. Bullock, U.S.A., retired, of Lookout Mountain, Tenn.; and Harold R. Bullock, of Oshkosh, Wis.

Charles H. Brown

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., December 31, 1932—Charles H. Brown, retired paper mill superintendent, died this week at the local hospital following a brief illness. He served with the old Ballston Spa Paper Company for a number of years in an official capacity and later worked for Taggart Brothers in this city. He was a son of the late Wallace Brown, a native of England, who was general superintendent of Taggart Brothers for several years. A brother is the principal survivor.

Graham Paper Bids in Mt. Vernon Mill

MT. VERNON, Ind., January 3, 1933.—The Graham Paper company of St. Louis on a bid of $75,000 purchased the mortgaged property of the Mt. Vernon Straw and Paper Board company, including the factory building, machinery and equipment, at a sale on execution conducted by Sheriff Louis Holtzmeier.

The Graham company, plaintiff in a suit to foreclose a mortgage which paved the way to the sheriff's sale, was the sole bidder. The sale price was $30,000 less than a judgment of $105,000 taken in circuit court in the foreclosure proceedings.

New York Trade Jottings

R. S. Kellogg, secretary of the News Print Service Bureau, with offices at 342 Madison Avenue, New York, has returned to headquarters after a lengthy business trip to Canada and the Lake States.

* * *

The Continental Paper and Bag Corporation, a division of the International Paper Company, New York, has leased approximately 60,000 square feet of space in the Terminal Building at Elizabeth, N. J., formerly the Durant Motor Company plant, at Newark and North Avenues, Elizabeth, for a period of years.

* * *

In line with the new policy of the Smith-Lewis Fibre Can Corporation, of Lowville, New York, manufacturers of Sani-Seal liquid containers, oyster pails, ice cream pails and egg boxes, the A. R. Melker Company, of 110 East 42nd street, has been reappointed sales representative in the metropolitan district commencing January 1, 1933.

* * *

Julius Jonas, public accountant, auditor and tax consultant, announces removal of his offices to more convenient quarters at 370 Seventh Avenue, New York. Mr. Jonas, for over 25 years, has acted in an advisory capacity exclusively for paper manufacturers, paper distributors and converters. Among his clients are included the leading organizations in the industry.

* * *

Whiting-Plover Paper Company, Stevens Point, Wis., has transferred its Eastern office to Room 919, National City Bank Building, 17 East 42nd street, New York City. At the same time the office has been placed directly under mill control, instead of being operated by a sales agency as before. Louis Gailer, who has sold Whiting-Plover's rag-content bonds, ledgers and writings for many years, is manager of the New York office.

* * *

J. W. Boyle, formerly with the Atlantic Gummed Paper Corporation, of Brooklyn, N. Y., and now on the staff of the Brown Bridge Mills, at Troy, Ohio, visited Toronto, Ontario, during the festive season. Mr. Boyle was for many years supervisor of the color mixing and coating department of Ritchie & Ramsey and the Georgetown Division of the Alliance Paper Mills, manufacturers of high grade coated papers, both of Toronto.

J. W. MacMorris Joins Norma-Hoffman

Anticipating an early resumption of activities in its many markets, the Norma-Hoffmann Bearings Corporation, Stamford, Conn., has been making ready with extensive additions to its line of "Precision" ball, roller and thrust bearings. As a step in the preparation for larger production, John W. MacMorris has been engaged as factory manager, and assumed his new duties on December 15. He brings to his new position many years of production experience, including nine years as factory manager for S.K.F. Industries, Hartford plant.

Chicago Salesmen to Meet January 9

Not until January 9 will the Middle West Division of the Salesmen's Association of the Paper Industry reconvene for another year of weekly meetings at the Hamilton Club. Under the direction of Creighton Whiting, vice-president, the association plans a series of interesting luncheon sessions which will be doubly attractive because of increased activity in the development of a paper industry exhibit at the World's Fair beginning in June.

May Establish Board Plant at Portland

LEWISTON, Me., January 3, 1933—Negotiations are in progress for the purchase of the Rogers Fibre Company's mill at East Poland, by Ohio interests seeking to establish a plant for the manufacture of fibre insulation board in western Maine, it was announced Thursday.

This mill, located on the Little Androscoggin river, two miles south of Mechanic Falls and four miles above Auburn, was selected as satisfactorily meeting requirements after the engineers had visited a number of other plants in the State.

Supplied a list of available plants by the State Chamber of Commerce at their request, after they had stated certain specifications, the engineers inspected many of them in company with a representative of the State Chamber.

Four of the plants viewed are located in Portland and others are at Westbrook, South Windham, Steep Falls, Bar Mills, Waterboro, Sanford, North Berwick, Kennebunk, Biddeford, Yarmouth, Freeport, Bridgton, Mechanic Falls and Poland.

The mill at Poland is owned and was recently vacated by the Rogers Fibre Company. The engineers consider it the best adapted to the type of industry proposed by the interests they represent and they have submitted a proposition to the company's agents at Kennebunk. No decision has been reached.

The buildings of the favored mill are, it is understood, of modern construction, with boilers and machinery in good repair, and with excellent water power and auxiliary electric facilities.

United Container Association To Meet

The annual meeting of the United Container Association will be held at the Congress Hotel, Chicago, on Thursday and Friday, January 19 and 20, 1933. The various committee meetings will be conducted according to the following schedule:

THURSDAY, JANUARY 19

9:30—10:30 A.M.—Membership Committee
10:30—11:30 A.M.—Traffic Committee
11:30—12:30 P.M.—Standardization Committee
1:00— 2:00 P.M.—(Luncheon) Nominating Committee
2:30— 3:30 P.M.—Cost and Statistical Committee
3:30— 5:00 P.M.—Executive Committee

FRIDAY, JANUARY 20

10:00 A.M.—General Association Meeting
1:00 P.M.—Luncheon and Forum

At the luncheon and forum a further discussion will be conducted by Norman F. Rehm of "Fibre Containers" on the plan for building a Table of Differentials showing the relationship between the prices of corrugating materials and corrugated shipping containers. Other equally important papers are in course of preparation. The annual election of officers and executive committee will be held at this meeting which assures as well as requires a large attendance of the membership.

Bids for Government Paper

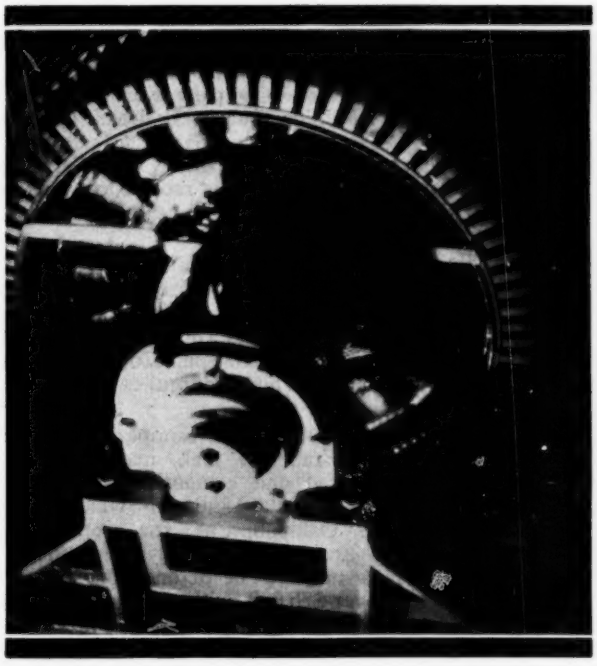
[FROM OUR REGULAR CORRESPONDENT]

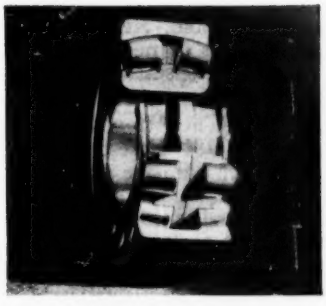
WASHINGTON, D. C., January 4, 1933—The Government Printing Office has received the following bids for 10,565 sheets of gummed paper; Brown Bridge Mills, Inc., at $9.90 per M sheets; Virginia Paper Company, $10.50; Mathers-Lamm Paper Company, $10.50; R. P. Andrews Paper Company, $13.90; Whitaker Paper Company, $9.77 and $10.29; Barton, Duer & Koch Paper Company, $10.00; Lindemeyer Paper Company, $10.29 and $10.25; Walker Goulard Plehn Company, $11.00 less 2 per cent; and Old Dominion Paper Company, $10.39.

THE SKF GALLERY OF DISTINGUISHED PERFORMANCE USERS:

THE APPLETON MACHINE COMPANY

UNIFORM RESULTS COME WITH SKF PERFORMANCE





IN THE SPOTLIGHT... the SKF Spherical Roller Bearing on the motor end of the Appleton Close-Coupled Jordan. Its performance can always be counted upon, where reliability, efficiency and quality output are in constant demand. No danger of this SKF Bearing going "tempermental" at the wrong time... past experience proves that it will deliver the fullest measure of service without trouble.

SKF Spherical Roller Bearings are rugged without sacrifice of smooth operation. They are a definite factor in achieving economies throughout a long life. Showing no wear, and needing no adjustments it is possible to maintain close tolerances resulting in stock that is uniformly refined...and can be held to a definite standard. "The advantages of anti-friction bearing performance have been developed to an unusually high degree in the Appleton Close-Coupled Jordan," says the manufacturer... leaving no doubt that SKF Performance Takes Preference Over Price.

SKF INDUSTRIES, Inc.
40 East 34th Street, New York, N. Y.

2980

WHERE PERFORMANCE TAKES PREFERENCE OVER PRICE

● *You may buy a bearing as a bargain but try and get a bargain out of using it, for nothing is apt to cost so much as a bearing that cost so little.*

SKF
BALL AND ROLLER BEARINGS

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Harlingen, Tex.—The Crown-Zellerbach Corporation, 343 Sansome street, San Francisco, Cal., is said to have preliminary plans under way for a new branch plant unit at Harlingen, to be used primarily for the manufacture of tissue stocks for the wrapping of citrus fruits. Proposed structure will be two-story and basement, reported to cost over $50,000, with equipment. It is understood that work will be placed under way early in 1933. The S. G. Yount Company, Corpus Christi, Tex., company agents for this district, is interested in the project.

New York, N. Y.—The Domestic Folding Box Company, Inc., recently organized by Louis Koch and Irving Ginsberg, 418 West 25th street, with capital of 100 shares of stock, no par value, is said to be planning early operation of local plant for the manufacture of folding paper boxes and other paper containers.

Chicago, Ill.—General Waxed Papers, Inc., recently organized under Delaware laws, has taken over the Kelwax Division of the Kellogg Paper Products Company, 526 West 18th street, Chicago, with plant on South Canal street. The new company will carry out a general expansion and development program, specializing in the production of plain and printed waxed wrapping papers for food products of various kinds, bond stocks, glassine papers, kraft and manila stocks. It is understood that the acquiring company will take immediate possession of the Kelwax organization. The new company is headed by Walter C. Hasselhorn, president; J. E. Richards, secretary and treasurer; and John T. O'Connor, vice-president in charge of sales. The last noted was formerly identified with the Kelwax Division.

West Springfield, Mass.—The Strathmore Paper Company, Mittineague, West Springfield, is said to have tentative plans under way for a new building at its mill, to be used primarily for printing service. It will be two-story and basement, and is reported to cost over $40,000, with equipment. It is understood that work will be placed under way in the spring. L. R. Howes is company engineer, in charge.

New York, N. Y.—The Hawley Pulp and Paper Company, Oregon City, Ore., a Delaware corporation, has filed notice of organization at Albany, N. Y., to operate in the state with a capital of 228,000 shares of stock, no par value.

New York, N. Y.—The Favorite Paper Box Company, 418 West 25th street, has arranged for an increase in company capital from $40,000 to $75,000, for general expansion.

Kansas City, Kan.—In connection with new addition to plant of the Sealright Company, Inc., Fairfax and Rickel streets, recently referred to in these columns, it is proposed to provide equipment and production facilities for an output of about 500,000 paper cans per day. The structure will be one-story, 70 x 153 feet, and superstructure is being carried out under the direction of the Kansas City Industrial Land Company, Kansas City, Mo., a subsidiary of the Union Pacific Railroad Company, Omaha, Neb. General contract was recently let to the W. K. Martin Construction Company, Dwight Building, Kansas City, Mo. Entire project is reported to cost over $65,000, with machinery. Company is a subsidiary of the Oswego Falls Corporation, Fulton, N. Y.

New York, N. Y.—The F. & F. Paper Box Company, Inc., recently organized with a capital of $10,000, is said to be arranging early operation of a local plant for the manufacture of paper boxes and containers. The company is represented by Max Aronson, 276 Fifth avenue, New York, an attorney. Walter Margulies is one of the incorporators.

Emeryville, Cal.—The Paraffine Companies, Inc., 475 Brannan street, San Francisco, Cal., manufacturer of building papers, fiberized and composition stocks, etc., has awarded general contract to Lindgren-Swinerton, Inc., 1723 Webster street, Oakland, Cal., for proposed new addition to mill at Emeryville, recently referred to in these columns. New unit will be of one-story type, and is reported to cost over $70,000, with equipment. Superstructure will be placed under way at early date.

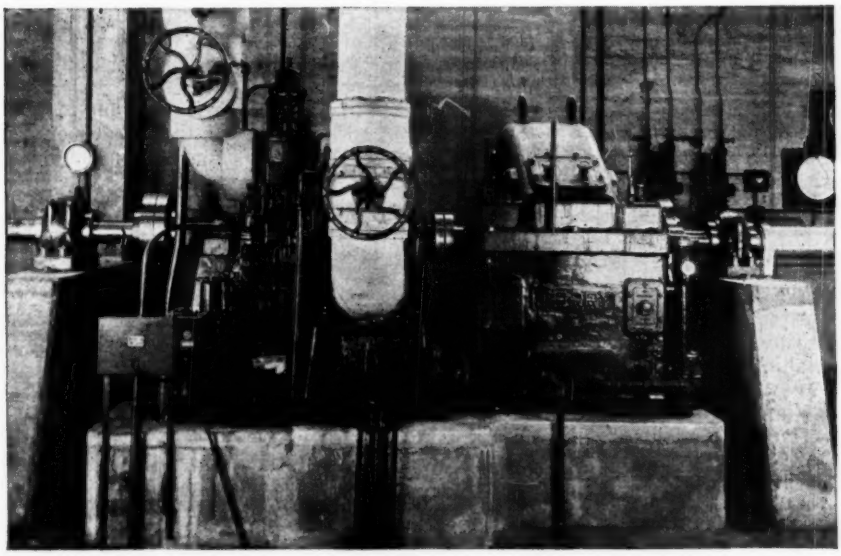
New Brunswick, N. J.—The Paper Box Corporation of New Brunswick, Inc., has been organized with a capital of 2000 shares of stock, no par value, to operate a local plant for the manufacture of paper boxes and containers. It is proposed to begin operations at an early date. Maurice A. Rubin, Newark, N. J., is one of the principal incorporators of new company, which is represented by Joseph A. Weisman, 535 High street, Newark, an attorney.

St. Paul, Minn.—The Minnesota Mining and Manufacturing Company, 791 Forest street, manufacturer of sandpaper and other abrasive paper stocks, is awarding miscellaneous contracts for completion of new addition to local mill, now under way, and expects to have units ready for service at early date. A contract for roofing has been let to A. R. & W. J. Gross, 1935 University avenue, St. Paul, while plastering contract has been awarded to L. J. Larson, Endicott Building, same city. As previously reported, general building contract is being handled by William M. Murphy & Son, Pioneer Building, St. Paul. Entire project will cost about $40,000. Toltz, King & Day, Inc., Builders' Exchange Building, city, is architect and engineer.

Ellesmere Port, England—Bowaters Paper Company, Ltd., has approved plans for a new paper mill at Ellesmere Port, and general contract for steel framing has been let to Redpath, Brown & Co., London, England. The new plant will consist of several units, equipped for a capacity of about 5000 tons per month, and is expected

TERRY

PAPER MACHINE DRIVE



400 HP Variable Speed Turbine Paper Machine Drive — Compact — Efficient — Dependable — Delivers Clean Exhaust Steam for Driving.

GIVES ANY DESIRED SPEED

Among the many advantages of the Terry Paper Machine Drive is its ability to give higher paper speeds. It thereby enables the operators to obtain a wider speed range.

It can be built to give any speed throughout a 10 to 1 range. Whatever speed is most suitable for the stock is immediately available. All speeds from minimum to maximum are secured without steps. Unusually accurate regulation is obtained at all settings.

Why not investigate the possibilities of one of these dependable units? No obligation.

The TERRY Steam Turbine Co.

TERRY SQUARE, · · HARTFORD, CONNECTICUT

TURBINES, GEARS SHAFT COUPLINGS

to be ready for service late next spring. It will cost over $1,500,000, with machinery.

New York, N. Y.—Louis Salkowitz, 50 Bond street, manufacturer of paper boxes and containers, has leased space in the building at 10-12 Bleecker street, and will occupy for new plant. It is understood that present works will be removed to new location and capacity increased.

Pulaski, Va.—The B. Engel Paper Box Company, 123 Sussex avenue, manufacturer of paper boxes and containers, is said to be planning for early operation of new branch plant at Pulaski, where property was recently leased. The initial equipment installation will provide for employment of about 25 persons, and it is understood that this will be increased at a later date.

Los Angeles, Cal.—The Crystal Paper Service Corporation has been incorporated with a capital of 1000 shares of stock, no par value, to deal in paper goods of various kinds. The incorporators are Frederick N. Edwards, Harry L. Dunn and Clinton La Tourrette. Company is represented by O'Melveny, Tuller & Myers, Title Insurance Building, Los Angeles, attorneys.

Chicago, Ill.—Rex Paper Stock Company, 2237 Ford avenue, has been incorporated with a capital of $10,000, to deal in paper goods. Morton H. Rynn is the principal incorporator. Company is represented by Cohen & Godstein, 134 North LaSalle street, Chicago, attorneys.

New Companies

Marinette, Wis.—The Northland Paper and Specialty Company has been incorporated to manufacture paper specialties of various kinds. B. C. Steen, Marinette, is the principal incorporator.

Jackson Heights, L. I.—The Ango Wood Specialties, Inc., Jackson Heights, has been incorporated with a capital of $20,000, to manufacture paper and pulp products of various kinds. The incorporators are Joseph G. DeVito, and John L. McAdam, 40-10 Eighty-second street, Jackson Heights, Queens.

Boston Paper Trade Happenings

BOSTON, Mass., January 2, 1933.—"Westvaco Inspirations for Printers," Number 79, showing displays of fine printing, including four-color work, half-tones and line cuts, are being released for distribution in the trade, with the Arnold-Roberts Company as New England representatives. The brochure demonstrates the high quality of several papers and their adaptability to color work and attractive printing. Westvaco Papers are made by the West Virginia Pulp and Paper Company.

The office of the American Writing Paper Company at 10 High street is now the New England office, covering all New England. This office previously covered Boston and vicinity.

A picturesque display in windows of the office building of Carter, Rice & Co., Corp., featuring papers of the Brown Company, shows a typical scene in the forest, with the statement that products are obtained from the woodlands of the United States and Canada. In miniature, are the log quarters of the workmen, a two-horse sled with a load of logs, a shed, etc. The display includes a small quantity of sulphate pulp in sheet form, ready for the beater machine, sulphate pulp in bulk form, and finished products of Nibroc Kraft and Duracel Tag.

Benjamin C. Spaulding, secretary of the Baird & Bartlett Company, who has been confined to the house by illness, has returned to his duties.

J. N. McDowell, sales representative of the Carew Manufacturing Company, South Hadley Falls, Mass., called on the trade last week.

WISCONSIN MILLS OPTIMISTIC

(Continued from page 17)

are higher now than earlier in the year, due to an increase in the cost of some of our raw materials.

"I prefer not to make any predictions for 1933 because actual experience has mocked at some well intended prophecies made during the past three years, but considering the orders we have now and certain orders we expect to receive, it would lead me to believe that our 1933 production will compare favorably with 1932.

"I have had an opportunity to discuss the situation with other box manufacturers recently and the general opinion seems to be that prospects are better than a year ago, but that improvement will be very gradual."

News of the Industry

Appropriations recommended to Congress in 1934 for the United States Forest Products Laboratory at Madison, Wis., amount to $566,791. This is the amount budgeted by the Department of Agriculture and was not cut by the house committee on appropriations when its recommendations were made. The laboratory reports progress on its pulp and paper research and desires that its work shall not be minimized. About 95 per cent of the appropriation will be spent on personnel. The laboratory is now operating in its immense new building costing nearly a million dollars.

Several paper mills were among the recipients of tax refunds from the U. S. treasury department during the fiscal year 1932. Among these were: Kimberly-Clark Corporation, Neenah, Wis., $28,986.92; Gilbert Paper Company, Menasha, Wis., $826.71; Outagamie Paper Company, Kaukauna, Wis., $10,218.30; Marathan Paper Mills Company, Rothschild, Wis., $2,395.10; Rhinelander Paper Company, $32,834.03; Thilmany Pulp and Paper Company, Kaukauna, Wis., $7,391.31, and Kieckhefer Container Company, Milwaukee, Wis., $11,379.69.

Employees of the Mosinee Paper Mills Company, Mosinee, Wis., gave a dinner recently in honor of Henry M. Kronenwetter, who is leaving the mill to become sheriff of Marathon county as a result of the Fall election. He has been employed in the wood room and saw mill for twenty-three years.

Marinette and Menominee Paper Company, Marinette, Wis., made a much appreciated distribution at Christmas time among 278 employes. Each received a whole ham from one of the local packing plants.

A. W. P. Sends Check Based on Silver

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 3, 1933.—The American Writing Paper Company, Inc., will today tender a check to the Holyoke Water Power Company for their water rentals, the amount being equivalent to the amount of silver bullion offered semiannually since July, 1931. This tender has been made with the construction that the paper company has placed upon the old indentures. The payment however, will, by agreement, and legal stipulation, have no effect on the litigation now in progress over the matter and for that reason will be accepted by the water power company. The case itself will eventually be appealed to the United States Supreme Court.

Stoner Paper Co. to Sell Printing Papers

LOS ANGELES, Cal., December 30, 1932—The Stoner Paper Company, with headquarters at 600 East 12 street, has entered the printing paper field. The house will make a specialty of handling printing papers

Note the *Bottom* Blade Mounting › ›

—IT'S DIFFERENT

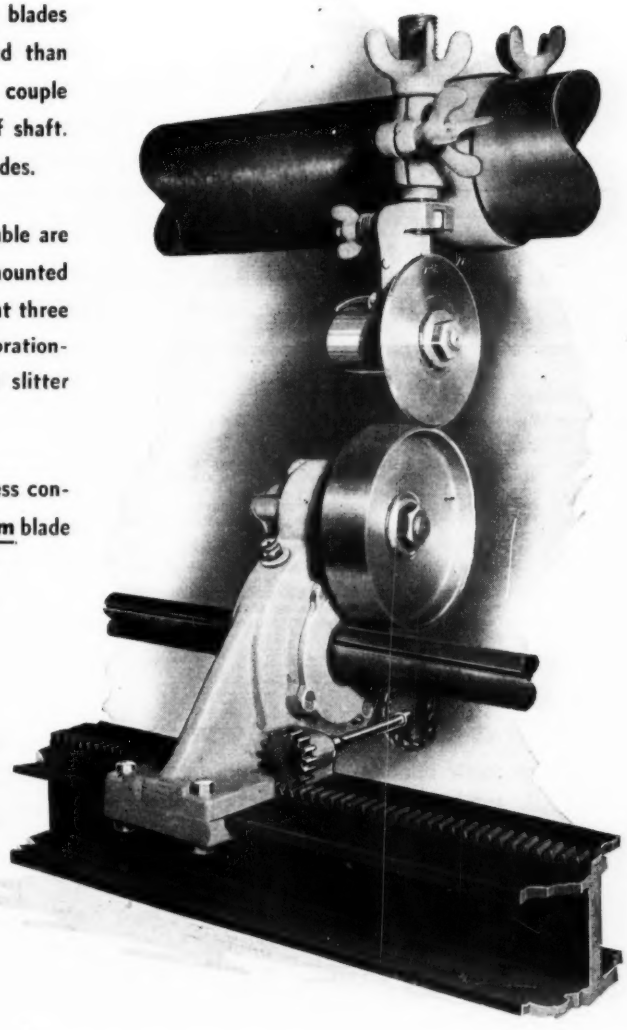
ACCESSIBLE for YOUR CONVENIENCE

Under the usual arrangement of mounting **bottom** blades directly on shaft, a dull blade is more easily observed than cured. It is necessary to dismount shaft, and possibly a couple of blades, to replace a dull or nicked blade midway of shaft. Hence the tendency to postpone regrinding bottom blades.

In "M & W" Ball Bearing Slitters, these causes of trouble are avoided. The **bottom** blades, instead of being mounted directly on shaft, are mounted above it and gear-driven at three times shaft speed. This permits using slow-running, vibrationless shaft. Both drive shaft (which is splined) and slitter spindles run in annular ball bearings.

This gives a true-running, almost frictionless and wearless condition with minimum need for lubrication. Any **bottom** blade can be replaced in a moment or so, without disturbing shaft or any other blade, merely by undoing end nut holding it on its shaft.

To complete the improvement, top blades also run in ball bearings. Thus the chance of frictional drag, and of wabble due to worn bearings, is eliminated. Any top blade is replaced, like any **bottom** blade, by removing one nut.



- SAVES CLAIMS FROM PRINTERS DUE TO DUST AND BAD EDGES.
- PREVENTS BLADE WABBLE THUS ELIMINATING SLITTER CRACKS.

Easy Blade Removal

Off and on in a Jiffy . . . Just undo the Nut

THE MOORE & WHITE COMPANY

Paper Mill Machinery

FIFTEENTH ST. AND LEHIGH AVE. PHILADELPHIA, PA.

PAPER TRADE JOURNAL
ESTABLISHED 1872

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COMING EVENTS

AMERICAN PAPER AND PULP ASSOCIATION, Fifty-Sixth Annual Convention and Meeting, Pennsylvania Hotel, New York, February 13-16. Luncheon, Thursday, February 16.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Pennsylvania Hotel, New York, February 13-15. Luncheon, Wednesday, February 15.

TECHNICAL ASSOCIATION OF THE PAPER INDUSTRY, Convention, Pennsylvania Hotel, New York, February 13-16. Luncheons, Wednesday, February 15 and Thursday, February 16.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting, Pennsylvania Hotel, New York, Tuesday, February 14. Luncheon, Tuesday, February 14.

NEW YORK ASSOCIATION OF DEALERS IN PAPER MILLS' SUPPLIES, Annual Banquet, Hotel Commodore, New York, Wednesday, February 14.

CANADIAN PULP AND PAPER ASSOCIATION, Annual Meeting, Montreal, January 25-27.

WAY LAID FOR RECOVERY

Though economic relationships are still unbalanced, the National City Bank of New York believes that in the last six months ground has been laid for business recovery.

The chief of all causes of unsettlement and disturbances —disorder in world trade and currency relationship—are still grave problems, but, says the bank, there have been other depressions in which the outlook was as uncertain.

The energies of the people and their productive capacity have not been destroyed by the depression, nor have their wants diminishd, says the survey, adding:

"The difficulty is the breakdown in accustomed relationships, and during the three years readjustments necessary to restore practical terms for trade have been going forward. Losses have been written off, debts discharged and costs reduced. The situation shows that the readjustments have not been sufficient in all cases, but it cannot be contended that they have been without effect.

"It may be considered that in the past six months a ground for business recovery has been laid that had not existed hitherto in the depression."

The outstanding characteristics of the progress of the last half-year are listed by the bank as follows:

1. The contraction of credit has been halted, and the volume outstanding is larger at the end of the period than at the beginning. The financial situation has improved steadily since early summer, and the growth of confidence in the country's money and in the general solvency of the banking system has relieved the pressure on credit and thus removed one of the causes of deflation. Funds have piled up in the centers, available to business when trade relationships are restored.

2. The decline in business activity has been stopped, and the level is higher at the end than at the beginning. The third quarter was a period of improvement and marked gains in activity, and the recession during the final quarter has been moderate in most practiculars, not materially exceeding the seasonal expectation.

3. The decline in prices was stopped, and, despite subsequent reactions, stocks and bonds hold well above bottom, while commodities are but little under the June low.

4. The piling up of commodity stocks has been checked. Although in the raw materials the improvement is not very substantial, stocks of manufactured goods in all lines are conspicuously low, and much below a year ago. The small stocks of automobiles in dealers' hands are an example.

CHEMICAL UTILIZATION OF WOOD

Under the title of "The Chemical Utilization of Wood," a handbook presenting a comprehensive picture of the wood by-products industries has been released by the National Committee on Wood Utilization of the United States Department of Commerce. The report is the work of Dr. Henry K. Benson, Chairman of the Division of Chemistry and Chemical Technology, National Research Council, Washington, D. C.

Beginning with a brief description of wood as a raw material and its physical properties and chemical composition, the report deals primarily with the different chemical processes and the products resulting. Wood pulp, naval stores, wood distillation products and the utilization of by-products are given exhaustive treatment in the report's 150 pages. With each chapter a valuable list of references to existing technical literature is included.

Leaders in the forest industries realize their future lies in the diversification of their industry, and the chemical utilization of wood seems to offer one of the best opportunities. From being producers of timber and lumber alone, the forest industries are gradually entering a new phase of development where what formerly were waste products are at this time being turned into valuable raw material.

A review of the work of the laboratories of the world engaged in wood chemical research discloses an interesting variety of products, from smokeless powder to cellophane, and from sugar—both for human consumption and for animal food—to motor fuel. Showing what has been accomplished in this field up to the present time, the report will be particularly valuable as the basis for research workers and chemical engineers, and to forest owners and

wood-using industries desiring to study the manufacture of by-products.

The National Committee on Wood Utilization is working towards more complete and consequently more profitable utilization of the tree. Recently it conducted a series of studies of available wood waste material in the Atlantic Coast States. The wood chemical report may be purchased for 15 cents a copy from the Government Printing Office, Washington, D. C., or from the branch offices of the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, located in principal cities.

Buy American

Watertown, N. Y., January 3, 1933

EDITOR, PAPER TRADE JOURNAL:

It would seem to me that the enclosed editorial, appearing in the December 29 issue of the *Watertown Daily Times*, is worth reprinting.

There is no doubt in our minds that, if the mills would take this matter up with publishers of newspapers in their territory, it would start something worthwhile and eventually create a demand for domestic paper that would be of material benefit.

J. V. BARON, Vice-Pres. and Gen. Mgr.,
Sherman Paper Company

"BUY AMERICAN" AND THE PRINT PAPER INDUSTRY.

Are the American journals who are advocating so vigorously and so vehemently "Buy American" buying their print paper in the United States? It would be interesting to know just how many of these papers are obtaining their daily supply from our own mills. How many could honestly print at the head of their editorial column "Made in America?"

A few years ago the Northcliffe press in England was buying its paper in Sweden in spite of the fact that it had its mills in Newfoundland. Where is the *London Mail*, owned by the Northcliffes, getting its paper now when the slogan has gone through the Empire "Buy British?" Returning to America, where is Mr. Hearst buying his news print? It would be interesting to know in that he is the most vigorous in his advocacy to "Buy American."

Sweden and Japan are selling news print in America today and with the rate of exchange as it is and with the absence of tariff they are quoting prices far under those which American manufacturers can quote. It is all to the injury of American industry. The army of unemployed in this country is increased by these foreign purchases and the newspaper publishers themselves have to pay their share toward the unemployment relief.

The "Buy American" movement has progressed well. There is much in it to commend yet there should be a full degree of consistency on the part of those who advocate it. Those who advocate "Buy American" should be in position to print conspicuously in their publications "Made in America."

Now Eastwood-Nealley Corp.

The Eastwood Wire Corporation, of Belleville, N. J., one of the oldest and leading manufacturers of Fourdrinier and cylinder wires, has just been purchased by a new organization headed by Calvin H. Nealley, for many years connected with the Eastwood organization. The title of the new organization will be the Eastwood- Nealley Corporation, with plant and main offices at Belleville, N. J.

Indicating the Grain Run

Pittsburgh, Pa., January 2, 1933

EDITOR PAPER TRADE JOURNAL:—

From time to time I have discussed with various representatives of the makers of and dealers in "Writing" papers the very great importance to the printer of *knowing* which way the "grain" of any particular sheet may be, and this knowledge becomes a more important factor almost daily.

In our experience there are at least two reasons why it is advisable for us to know which way the "grain" runs. First, theory and good practice prompts the running on cylinder presses of paper with the "grain" parallel to the cylinder whenever it can be done without disturbing other conditions applying to the particular work in hand. Second, and of much greater importance, is the ever-increasing use of mechanical appliances of all kinds in accounting and bookkeeping work.

Now the above recited problems were comparatively simple of solution until the development of the "Rubber Stamp" watermarking process, wherein the marking device is fastened around the circumference of the "Dandy" roll instead of parallel to it as was the case in the original wire-screen process of watermarking, under which process we could be quite certain that the grain would be at right angles to the reading of the watermarking.

All of the above now brings us to the suggestion we desire to make, which is that there be placed in every watermark some mark indicating the direction of the grain in each sheet, and we feel that this can be done at a minimum of expense or trouble.

Without the advantage of any technical knowledge of the paper manufacturer's problems it seems to the writer that some simple indicating mark could easily be added to the present marking appliance without much difficulty, as for instance:

UMPTY BOND →
or
UMPTY ↓ LEDGER

The idea intended here is that the arrow indicates the way "grain" runs in the paper. What do you think?

—G. R. D.

Bagley & Sewall Perfect New Machine

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., January 2, 1933—The Bagley & Sewall Company has perfected a new kind of a Fourdrinier papermaking machine which is said to be much less complicated and not as expensive as those heretofore built at the local plant. Among the qualities of the machine is a quick wire changing arrangement under which the wires may be changed in a brief period which is brought about without interfering with the other details. It is optional with the prospective purchaser, however, whether this arrangement is included as it makes no material difference with the construction of the machine.

Another principal feature permits adjustment of the pitch of the wire up or down during operation. Means are provided for lessening the required time and labor to a minimum in wire changing without risk of injury to the machine or wire and formation control is said to compare favorably with any similar unit being offered to the trade. A flexibility of shake control is also noticeable which admits of varying degrees at different times as desired during operation which is understood to be a new departure from the ordinary arrangement.

Control . . .

Sources, raw materials, manufacturing steps and service that are thoroughly *controlled,* are better.

American Cyanamid & Chemical Corporation controls. Under this signature a group of formerly separate companies operates to supply almost countless industries with good chemicals. Fingers of a powerful hand, these departments are sensitive to all developments in their particular fields, yet stable, because of the "check" of a parent organization . . . a control exercised from the raw material up to the door of the customer's receiving department.

AMERICAN CYANAMID & CHEMICAL
CORPORATION
535 Fifth Avenue, New York

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members of the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

The charge for the photostat service is: 9 x 11 inches—18 cents per page, 18 x 11 inches—35 cents per page, 22 x 18 inches—70 cents per page, minimum charge, 50 cents.

Payment should be made upon receipt of invoice.

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cens each. Send currency, not stamps.

Alkaline Processes

A Defective Straw Paper. Camillo Levi. Boll. staz. sper. ind. carta e studio fibre tessili vegetali 11: 41 (1932); C. A. 26: 6131.—On the surface of a sample under examination were noted segregated parts with yellow and brown colorations. The presence of fibers other than straw caused an unstable yellow color as a result of absorption of maceration water incompletely eliminated during washing. The slow action of the carbon dioxide in the air gradually neutralized the alkalinity, producing the white-yellow color of the unchanged straw.—C. J. W.

Concerning the Relation of Soda Pulp Towards Alcohol. C. Trogus and K. Hess. Cellulosechemie 13, No. 5:81-83 (May 15, 1932).—J. F. O.

Concerning the Removal of Hemicelluloses From Wood With Sodium Hydroxide. Otto Horn. Cellulosechemie 11, No. 7: 151-152 (July 6, 1930). Methods, directions and results are given for the removal of the hemicelluloses by means of sodium hydroxide.—J. F. O.

Some Variations in Cooking Kraft Pulp. Ralph Reid. Paper Trade J. 95, No. 19: 38 (Nov. 10, 1932).—A brief outline of the method developed at the mill of the St. Helen Pulp and Paper Co. to control the conditions of cooking kraft pulp so as to obtain uniform quality.—A. P.-C.

Production of Wood Pulp. Linn Bradley and Edward P. McKeefe assignors to Bradley-McKeefe Corp. U. S. pat. 1,870,944 (Aug. 9, 1932).—Wood is cooked with a liquid containing a sulphite of sodium, and constituents of the residual liquor are treated under reducing conditions to form a product containing sodium sulphide which is used for preparing a liquor in which wood is cooked; residual liquor from the last-mentioned cooking is treated to form a different cooking liquor containing caustic soda as its main active constituent and wood is cooked with this liquor, residual liquor from this operation being treated to regenerate a cooking liquor.—A. P.-C.

Treating Woody Materials for Paper Making. Logan A. Dils assignor to Kellogg Dils, Inc. U. S. pat. 1,868,570 (July 26, 1932).—Material for paper making is obtained by treating woody materials with an aqueous caustic soda solution of about 50 per cent strength, in order to effect satisfactory cooking under atmospheric pressure.—A. P.-C.

Kraft Pulping Process. Otto Kress. U. S. pat. 1,867,626 (July 19, 1932).—Before cooking the chips are impregnated under pressure with a hot liquor containing about 5.4 to 6.3 per cent caustic soda and 4.0 to 5.7 per cent sodium sulphide; a portion of the excess liquor is withdrawn, this leaving 17 to 22 lbs. of active chemicals per 100 lbs. of wood in the digester (in the proportion of about twice as much caustic soda as sodium sulphide). The charge is then cooked, and the withdrawn impregnating liquor is restored to its original strength and amount by addition of recovered white liquor containing about 8.4 to 11 per cent caustic soda and 4.2 to 5.5 per cent sodium sulphide.—A. P.-C.

Production of Cellulosic Products. H. Dreyful. Worden, 1st, assignor to Hanson and Orth. U. S. pat. 1,866,917 (July 12, 1932).—Hemp fibers are disintegrated, purified by treatment with a hot solution of alkali hydroxide such as caustic soda, alkali silicate and a softening material such as an oil, washed, bleached in the absence of air and further washed. The product is suitable for rayon manufacture.—A. P.-C.

Method and Apparatus for the Continuous Control of Pulping Operations. Papeteries Navarre. Fr. pat. 729,513 (March 20, 1931).—The method is based on the change in the color of the cooking liquor at the various stages and degrees of cooking. Liquor from the digester is passed through a transparent cell. Light from a constant source is passed through the cell and falls on a photo-electric cell, which operates an indicator to show

the degree of cooking reached at each moment and which also controls the operation of the valves of the digester. —A. P.-C.

Production of Cellulosic Products. H. Dreyfus. Brit. pat. 374,047 (Nov. 26, 1930).—Wood chips, sawdust, straw, or other raw cellulosic materials still containing lignin, but preferably from which the resins have been extracted by means of aqueous caustic soda, are heated under pressure with water or with aqueous sodium bicarbonate, and the pressure is then released suddenly so that disruption of the material occurs and its active surface is greatly increased, thereby facilitating subsequent conversion into pulp.—A. P.-C.

Treating Chemical Pulp to Produce a High-Alpha-Cellulose Product. George A. Richter assignor to Brown Co. U. S. pat. 1,870,650 (Aug. 9, 1932).—Unbleached chemical wood pulp is subjected to the action of reagents such as sodium sulphite or sulphide at temperatures of about 150 deg. to 200 deg. C. to dehydrolyze certain of its components, and the pulp is then treated with an alkaline reagent such as caustic soda to dissolve products of hydrolysis and other non-alpha-celluloses associated with the pulp.—A. P.-C.

Process for the Preparation of a Very Pure Wood Pulp Free From Pentosans. I. G. Farbenindustrie Akt. Ges., Frankfurt a.M. Ger. pat. 550,971 (May 3, 1930). —Addition to pat. 539,938. In carrying out patent 539,938 further, after the three hour digestion of the pulp at room temperature with sodium hydroxide whose limits of concentration lie between 6 per cent and 15 per cent the mother liquor is pressed out or centrifuged to such an extent that there is at least 15 per cent sodium hydroxide (calculated on the dry weight of the pulp) remaining in the pulp.—J. F. O.

Process for the Purification of Pulps of any Kind. Zellstofffabrik Waldhof, Mannheim. Nor. pat. 49,967 (June 29, 1929).—The pulp is given an aging process after being drenched in caustic soda and pressed, the time and temperature of this aging process depends on the condition of the pulp.—J. F. O.

Obtaining Pure Sulphur Dioxide From Sulphur and Sulphuric Acid. I. G. Farbenindustrie Aktiengesellschaft, Frankfurt a.M. Ger. pat. 551,686 (Feb. 5, 1931). —The reaction takes place in a rectifying column.—J. F. O.

Process for the Manufacture of Pulp. Einar Morterud. Fin. pat. 13,845 (Sept. 10, 1928).—The material to be cooked is sprinkled with the cooking liquor while the material is in the digester. Liquor with various temperatures can be used so that the material to be cooked can be had at various degrees of decomposition.—J. F. O.

Process for the Treatment of Pine Wood Used in the Production of Paper Stock. Aleksander Lampen. Fin. pat. (13,846 (Dec. 2, 1929).—All parts of the wood which gives a fluoresent light in ultra violet are separated.— J. F. O.

Process for the Manufacture of High Grade Cellulose from Wood, Straw, Grasses and other Vegetables, Especially from Such Which Cannot Or Are Hard to Cook by the Ordinary Sulphite Process. Ernst Schmidt. Aust. pat. 125,698 (July 15, 1931).—The difficulties occuring during the cooking can be removed by the addition of one or more sulphate of the alkaline earths, but not the alkali group. Woods rich in resin can be cooked in the manner.—J. F. O.

Process for the Manufacture of a Highly Purified Pulp Free From Pentosans. I. G. Farbenindustrie A.G. Ger. pat. 548,035 (Nov. 3, 1929).—The quantity of caustic remaining after the centrifuging or pressing and before the cooking is wholly or partially removed by the addition of chlorides of the alkaline earths or the magnesium salts of the corresponding bases.—J. F. O.

Process for Improving the Cellulose Fibers by Treatment With a Solution of Ammoniacal Cuprix Oxide Alkali. I. G. Farbenindustrie A. G. Ger. pat. 547,-331 (Jan. 17, 1930).—The cellulose fibers are treated with such solutions whose content of free alkali is at least 1.5 to 2.0 per cent, but under 17.5 per cent, the mercerization limit, and then treated with the copper oxide solution in the usual manner.—J. F. O.

Black Liquors

Investigations Over the Influence of the Addition of Black Liquor in the Cooking of Sulphate Pulp. Erik Hagglund and G. Schollin-Borg. Papier-Fabr. 30, No. 23:359-63 (June 5, 1932).—The speed of reaction in the sulphate cooking process with constant alkali relation, sulphide content and equal alkali concentration and maximum temperature, is somewhat increased in the beginning of the cook with the addition of black liquor, in comparison with the speed of reaction of decomposition with a pure white liquor. Up to 50 per cent yield of good pulp, the addition of black liquor has no effect on the yield. The black liquor gives the pulp a darker color. An increase in sulphide content of the liquor from about 16 to 29 per cent is related to a change in the quality of the pulp, the fold increases considerably, but the tear decreases somewhat. —J. F. O.

Water Jacketed Steel Smelter Body for Recovery. Frederick W. Hooper. Paper Trade J. 95, No. 13:25-26 (Sept. 29, 1932).—A brief outline of the problems encountered in the development of a water-jacketed steel body for smelters used in black liquor recovery, and of the advantages which were revealed by 18 months of operation of a commercial installation at the mill at Ocean Falls, B. C.—A. P.-C.

Two-Stage Spray Drying With Reversed Currents. P. D. V. Manning. Chem. Met. Eng. 38:702-704 (1931). —A description is given of the latest form of the Peebles spray dessicator. The machine combines in one operation the processes of concentration, drying and atomization. Particulars of the production of kraft black liquor powders by its use are given.—A. P.-C.

Process for the Separation of Fatty and Resinic Acids as By-Products from the Precipitated Floating Rosin in the Manufacture of Sulphate Pulp. Liljeholmens Stearinfabrik A.Bol., Stockholm. Nor. pat. 49,-914 (Jan. 4, 1930).—The separation is carried out by the esterification of the fatty acids by means of alcohol and the ester and resinic acids are removed by distillation. An alcohol such as glycerin is used which gives with the fatty acid ester such a high cooking point that this does not in any appreciable amount contaminate the resinic acids distilling over but remains back in the distillation apparatus.— J. F. O.

Process for the Manufacture of Valuable Products from Vegetable Materials. E. L. Rinman. Nor. pat. 50,238 (July 3, 1930).—The vegetable material is first cooked with an aqueous solution of barium or strontium hydroxide or a mixture of both and the remaining liquor is neutralized to precipitate certain chemicals and evaporated and finally subjected to destructive distillation.— J. F. O.

Process for the Recovery of Rosin Solutions in the Cold State. Procedes Navarre, Lyon. Aust. pat. 126,-989 (Oct. 15, 1931).—The cold solution of caustic soda is displaced by a cold solution of other free mineral liquors whose concentration is not more than an equivalent of 7 grams of caustic soda per liter.—J. F. O.

Pulp Classification and Specifications

EDITOR'S NOTE: *The following is a stenographic report of the symposium on pulp classification and specifications which was held during the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 15, 1932. It is published at this time in anticipation of a further discussion of the subject at the annual meeting of the association on February 13-16, 1933.*

J. L. PARSONS, (Hammermill Paper Company, Erie, Pa.): In introducing this symposium on chemical pulp specifications this morning may I briefly enumerate the purpose of the session, the subjects we propose to discuss, and the plan we would like to follow in the discussions?

For some time there has been an increasing interest in pulp specifications on the part of association members and in order to initiate work in this field a sub-committee on chemical pulp specifications, under the chairmanship of Miss H. U. Kiely, has been formed. To secure information which might serve as a basis for future study, this committee in July sent out a questionnaire to association members in the form of Special Inquiry No. 183. An analysis of the replies received will constitute one of the features of today's program. In addition to the information obtained in this manner, it was thought that a discussion of several items pertinent to the subject of pulp specifications would be desirable for the association and especially helpful for subsequent committee study. Arrangements were made, therefore, for a symposium on chemical pulp specifications at this meeting. The symposium is being sponsored by the Raw Materials Division with the cooperation of the Operating and Testing Divisions.

The subjects selected for discussion at this morning's symposium are as follows:

1. Pulp use requirements
2. Pulp classification
3. Present status of ability to specify based on methods of evaluation
4. Color measurement of pulps

Obviously no attempt will be made to cover the entire field of pulp specifications, nor do we anticipate laying down any definite rules with respect to the subject. Rather it is the aim of this symposium to determine to what extent and in what direction the industry is interested in pulp specifications so that further work in this field can be carried out intelligently and efficiently by the association.

In a recent address[1] on specifications, Mr. J. W. Bancker, vice-president of the Western Electric Company, has well stated that the chief purposes of specifications are to define material accurately and to provide tests which will insure that material meets the limitations of the definitions. Thus, specifications become, in the main, simply definitions of the properties of materials with respect to their further use. Furthermore, specifications should serve to provide a basis of inspection mutually agreed upon between producer and consumer. Acceptance of a specification by the consumer, according to Mr. Bancker, is a pledge to relative uniformity at a definite level of quality. The quality level and uniformity required by the specification should accordingly be wisely proportioned to the needs of the consumer if the advantages of this method of purchase are to be secured. Cognizance is given, however, to the fact that papermaking is still regarded as somewhat of an art and that until this has been superseded by the scientific method utilizing accurate knowledge of materials and their processing, the full benefits of specifications for fibrous raw materials will hardly be realized.

The suggested plan of procedure with the symposium this morning is first to have a 20-minute paper introduce each item to be discussed. Following each respective paper several representative members have been invited to participate in 5-minute talks. A general discussion will conclude each subject. We are very desirous of hearing a discussion of all sides of the respective subjects and solicit the views of producers, consumers, importers, converters and other users of chemical pulps. In order to secure the maximum benefit of the rather short time at our disposal it is recommended that as far as possible the discussions shall be limited to the subject at hand.

Pulp Use Requirements

The first subject to be considered this morning is "Pulp Use Requirements" and it will be introduced by the paper entitled "A Suggested System for Characterizing Pulps and Stuffs Based on Use Requirements," by Messrs. Baird and Doughty of the Forest Products Laboratories. Mr. Baird will present the paper. (See PAPER TRADE JOURNAL, Dec. 15, 1932.)

P. K. BAIRD, (Forest Products Laboratory, Madison, Wis.): In talking with several of the committee chairmen I find they have definite research programs laid out but will be handicapped due to lack of quantitative data from which they are able to evaluate conclusions relating process effects in their committee work as well as in the industry. Therefore, it is my frank estimation and appeal at this time that the manpower of the association should be applied for the next three or four years largely to the development of test methods. I spoke to Mr. Reed, chairman of the testing division, last night, and expressed this viewpoint and I believe he is in accord, that the first step is the preparation of suitable test methods particularly for papers. In the Use Requirements Committee work I find that it will be impossible to know the properties of papers in a quantitative way until we have suitable test methods. The same applies to pulp evaluation studies. This has been recognized in a general way for a long time but I would like to emphasize it particularly this morning. As far as I am concerned I know the Use Requirements Committee will be willing to do what it can in this matter of developing test methods.

J. L. PARSONS: Before proceeding with a general discussion of use requirements of pulps, Miss Kiely, as chairman of the Sub-Committee on Chemical Pulp Specifications, will present an analysis of the results of Special Inquiry No. 183 with respect to this subject. Miss Kiely.

HELEN U. KIELY, (American Writing Paper Company, Holyoke, Mass.): The returns from Special Inquiry No. 183 sent out some time in July, were really not very satisfactory. Many checked every item on the questionnaire yet I am sure that no one is buying pulp on such a number of tests. After the meeting I think another such questionnaire should be sent out and from our experience in handling this one and from the helpful hints we will get from this meeting, I am in hopes that we may get some definite data which will make it possible for us to draw up something to offer as pulp specifications.

The following is the questionnaire sent out by the Technical Association to determine the extent to which individuals in the association classified and specified pulp for purchase:

[1] American Society for Testing Materials Reprint, The Economic Significance of Specifications for Materials, page 35 (1931).

SPECIAL INQUIRY 183

"This association has realized for some time the increasing importance of the need for pulp specifications and in order to assist in the development of adequate specifications and standard testing methods, satisfactory to both producer and consumer of pulp, a Chemical Pulp Specifications Committee has been formed and now earnestly solicits the cooperation of those interested in this subject.

As a basis for its work, the committee believes that information should be obtained concerning specifications and testing methods which are being employed by mills at the present time. Also suggestions from the industry concerning the work of the committee are very desirable.

Based upon the replies received, the Chemical Pulp Specifications Committee is planning a symposium on pulp specifications for the fall meeting at Holyoke. At that time the committee hopes to bring out a tentative classification of pulps based on use requirements which may be employed in the purchasing, selling or manufacturing of chemical pulps.

Information Requested by Chemical Pulp Specifications Committee

1. The following pulp class names, based on use requirements, have been suggested. What other names have you to add? Please criticize the list as submitted.

1. *Unbleached Sulphite*
   (a) Hard stronge grades
   (b) Soft free grades
2. *Semi-bleached Sulphite*
3. *Full-bleached Sulphite*
   (a) Hard Sulphites—High Strength—Long beating
   (b) Soft Sulphites—Low Strength—Moderate beating
4. *Chemically treated Sulphite*—high alpha cellulose content
5. *Sulphate*
   (a) Northern Sulphates
   (b) Southern Sulphates
6. *Semi-bleached Sulphate*
7. *Bleached Sulphate*
8. *Bleached deciduous Soda*
9. *Bleached deciduous Sulphite*
10. *Bleached deciduous Sulphate*

2. The following pulp properties are listed which may serve as a means of differentiating between the different classes of pulps. If the list is incomplete in your opinion, will you please add to it? Kindly check the properties which you consider necessary to pulp specifications, and after each one checked, please write the pulp class to which the property applies. (Indicate number and letter indicated in Question 1 for pulp class.)

1. Color, as received.
2. Dirt count.
3. Freeness or slowness, as received.
4. Rate of loss of freeness during refining.
5. Screen fractionation (fiber length measurements).
6. Physical properties of test sheets from pulp as received:
   (a) tensile
   (b) tear
   (c) bursting
   (d) folding
   (e) bulk
   (f) opacity
7. Physical properties of test sheets from pulp as refined:
   (a) tensile
   (b) tear
   (c) bursting
   (d) folding
   (e) bulk
   (f) opacity
8. Bleach requirement
9. Alpha cellulose
10. Total cellulose
11. Viscosity
12. Alkali solubility
13. Pitch content
14. Lignin
15. Ash
16. Copper number

3. To what extent are you making use of these properties in purchasing, selling or manufacturing chemical pulps?

4. What testing methods for the above checked properties do you employ? (If the procedure has been published, the journal reference will only be necessary.)

5. The committee welcomes further suggestions or recommendations on this subject."

Summary of Replies to Special Inquiry 183

1. Classification of Pulps

The classification as given in the questionnaire is evidently incomplete as most replies contain suggestions for possible extensions to the classification.

2. Pulp properties used for differentiation between pulp classes.

1. Color as Received
   51 per cent use color on unbleached sulphite
   74 per cent use color on bleached sulphite
   44 per cent use color on unbleached sulphate
   60 per cent use color on soda

   Color as received should be included in specifications on pulp.

2. Dirt Count
   56 per cent use dirt count on unbleached sulphite
   70 per cent use dirt count on bleached sulphite
   40 per cent use dirt count on kraft
   58 per cent use dirt count on soda

   Dirt count should be included in specifications on pulp.

3. Freeness as Received

   The percentage of replies received on this item is so low that it does not warrant its inclusion in pulp specifications.

4. Freeness after Refining
   47 per cent use freeness test after refining on unbleached sulphite
   51 per cent use freeness test after refining on bleached sulphite
   37 per cent use freeness test after refining on kraft
   33 per cent use freeness test after refining on soda.

   Freeness after refining should be included in pulp specifications.

5. Screen Fractionation

   The percentage of replies on this item is low and need not be included in pulp specifications.

6. Physical Tests (as received) Initial Strength

   Only Mullen and tear show an average of replies over 25 per cent all other tests on pulp as received are not considered.

Tear	Mullen	
40 per cent	40 per cent	unbleached sulphite
40 per cent	40 per cent	bleached sulphite
33 per cent	28 per cent	kraft
28 per cent	28 per cent	soda

Physical tests on pulp as received in pulp specifications should not be included.

7. Physical Tests (as refined) After Beating

The principal tests used on pulp test sheets after refining are burst, fold and tear. The average of replies on other tests less than 20 per cent

Burst	Fold	Tear	
60 per cent	30 per cent	56 per cent	used on unbleached sulphite
67 per cent	35 per cent	63 per cent	used on bleached sulphite
56 per cent	30 per cent	53 per cent	used on kraft
44 per cent	30 per cent	40 per cent	used on soda

While Mullen, fold and tear can be included in pulp specifications, burst and tear tests are used nearly twice as much as fold tests.

8. Bleach Requirement

53 per cent use bleach requirement on unbleached sulphite

30 per cent use bleach requirement on semi-bleached sulphite

40 per cent use bleach requirement on unbleached sulphate

30 per cent use bleach requirement on semi-bleached sulphate

Bleach requirement may be specified on unbleached and semi-bleached sulphite and sulphate pulps.

The remaining tests following may well be considered as special tests as the low number of replies places them into a special classification.

Alpha %	Total Cellulose %	Viscosity %	Alkali Soluble %	Lignin %	Ash %	Copper No.	
14	9	14	12	16	18	14	unbleached sulphite
25	7	14	16	12	21	23	bleached sulphite
23	5	14	16	9	18	21	alpha pulp

30 per cent use pitch tests on unbleached sulphite

21 per cent use pitch tests on semi-bleached sulphite

23 per cent use pitch tests on bleached sulphite

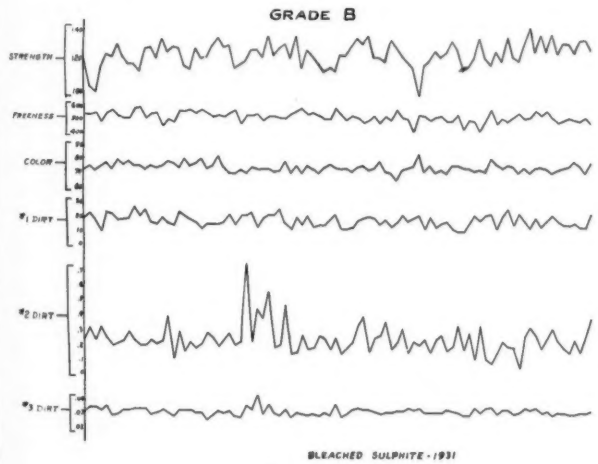


FIG. 1

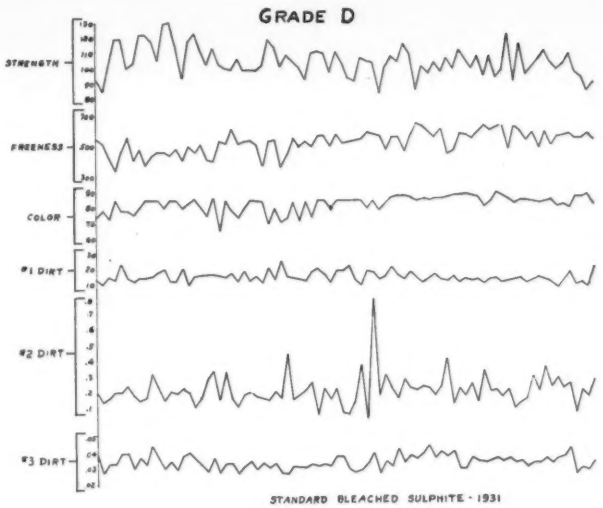


FIG. 2

Pitch content of pulp may be included in specifications.

In some replies returned for classification, all tests were applied on all pulps. Since it is obviously impossible that all tests should be used on all grades, it is evident that there was some misunderstanding as to what was required in the questions submitted.

The questionnaire was not for determining what tests could be made on a pulp but those tests that could be made regularly on all purchased pulps, when bought on specification.

The conclusions that could be based on this questionnaire have not been covered so that the analysis as submitted need not be considered too seriously.

3. Extent to which pulp properties are used in manufacturing, buying or selling.

Most replies would seem to indicate that physical tests form the basis of manufacturing, purchasing or selling and must conform to their established standards.

4. Testing methods employed for evaluating.

Either standard method or some modification of standard method. In some instances locally developed methods are used.

The Classification of Pulps Into Grades by Physical Tests

It has been customary among pulp and paper manufacturers to classify pulp as hard strong pulp and soft weak pulp. This classification is too broad and does not furnish a means of intelligently interpreting the true evaluation of a pulp. For this reason work was started to determine what physical tests would best indicate definite pulp characteristics that would be applicable to all pulps, and place them into definite classification or grade.

The usual physical tests, such as Mullen, fold, tensile and tear were used for this evaluation. It was found that more than one type of test was necessary as no one test would give the true characteristics of a pulp.

We have analyzed many pulps over a long period of time. The following charts show how a particular pulp will run fairly uniform over a year and a particular pulp will not change for one grade to another. While strength tests may be made by one of several methods we feel any method that develops the strength should group a pulp into a particular class.

We would change the classification of pulps as given in the questionnaire to the following six classes, as the terms "hard long beating" or "soft short beating" are ambiguous and may be interpreted differently by different paper manufacturers.

Physical Tests Classification

Class			
A	High Mullen (Over 130)	High Freeness (over 600)	High Tear (200-300)
B	High Mullen	Moderate Freeness (400-600)	Moderate Tear (150-200)
C	High Mullen	Low Freeness (below 400)	Low Tear (Below 150)
D	Low Mullen Below 110)	High Freeness	High Tear
E	Low Mullen	Moderate Freeness	Moderate Tear
F	Low Mullen	Low Freeness	Low Tear

The charts, Figs. 1 to 4, show these six classes graphically illustrated and how by physical tests these six classes may be established.

Mullen Test

The actual range of numerical values as determined on the various pulp grades by Mullen tests, varies somewhat for each grade but still retains a position in the classification without overlapping into an adjacent grade. The ease of classification by Mullen tests into a High Mullen and a Low Mullen makes it appear possible to include a moderate Mullen along with moderate freeness and moderate tear.

Freeness

The inclusion of freeness tests in the classification of pulp grades, while not an actual physical test in the same sense as Mullen or tear, gives valuable information regarding the probable behavior of pulps on the paper machine during its conversion from pulp into paper, and for this reason is included as being of some value in aiding to classify pulps. The freeness test, in addition to its indication of pulp behaviour on the paper machine, also shows the probable tearing strength of a pulp, in that the tear is usually low on pulp of low freeness and high on a pulp of high freeness. These two factors alone certainly justify the inclusion of a freeness test into a pulp classification even though some doubt exists as to the correct interpretation of freeness on pulps and its value as a means of classifying pulps by grades.

Tearing Strength

Tearing strength as included in the pulp classification does not give as marked a differentiation into pulp grades

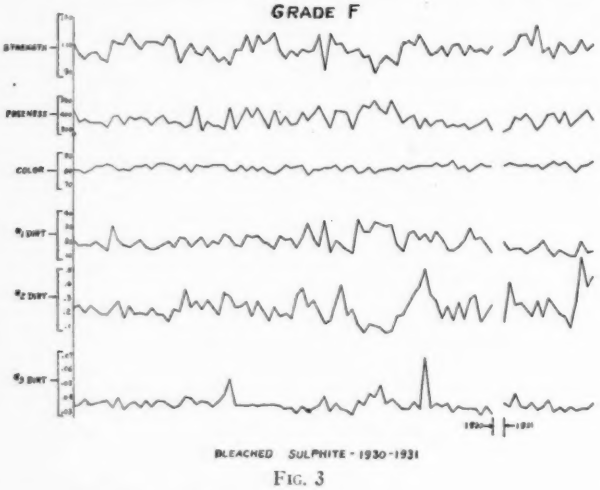


Fig. 3

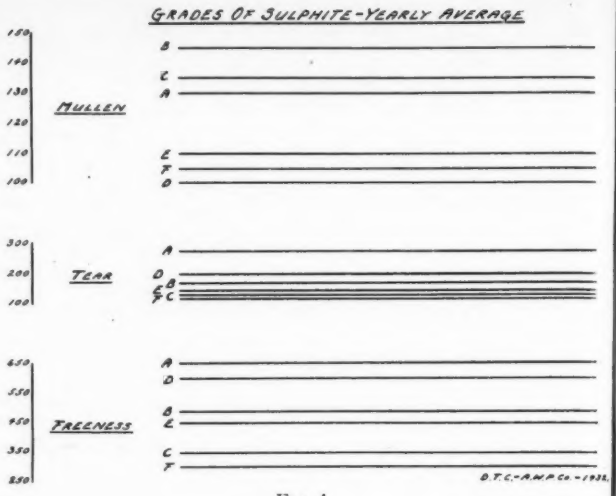


Fig. 4

as do Mullen and freeness, but nevertheless exhibit differences sufficiently large to separate these values into high tear, moderate tear, and low tear. Tear tests coincide with freeness tests to a marked degree and the values can almost be used interchangeably. In comparing freeness with tear it is possible to predicate with reasonable accuracy the tearing strength of a pulp with a known freeness, as either being high or low depending upon the pulp as being above or below its accepted freeness value.

Folding Endurance

When fold is included in the pulp classification into grades, it does not follow in the same order as does the Mullen, freeness and tear classification. While high Mullen, high freeness, high tear and high fold occur frequently high Mullen, high freeness, high tear and low fold do not occur, or high fold does not occur in combination with low mullen, low freeness and low tear. The combination of low Mullen with low fold occurs quite frequently in certain types of pulp.

The principal disadvantage of including fold as a physical test in the classification of pulps, is that it increases the number of possible combinations considerably yet does not show any marked differences in pulp characteristics that the combined Mullen, freeness and tear tests do not show. Some question also exists as to the reliability of fold tests on pulp hand sheets when the variations are so large they alter fold averages considerably. The time required for evaluating is also markedly increased: the folding tests sometime take longer to make than the remainder of the work connected with the pulp testing.

Development of Pulp Strength by Refining

The development of pulp strength by refining is graphically shown in the chart, Fig. 5, of three of the six pulp grades in our pulp classification.

This chart shows how pulp use requirements are developed during refining in a pulp type so that its particular use requirement for a particular paper type becomes apparent.

Type A—Glassine papers
Type B—Bond Papers
Type D—Papeterie or book papers

The Use of Chemical Tests for Pulp Classification

Most chemical tests are of no value in developing specifications for purchasing pulp in that they do not show differences in pulp grades that cannot be more conveniently shown by physical tests.

In developing two pulps for maximum strength, the following differences were brought out in comparing viscosity with Mullen Strength and Fold.

Pulp Type	Milling Time	Mullen Strength	Fold	Viscosity
B	30′	96	372	24.4
	120′	148	4450	21.7
Per cent difference	...	30	91	13.9
D	30′	72	113	12.0
	129′	123	2860	11.1
Per cent difference	...	41	96	7.5

The differences as shown by the viscosity test are small when compared with the differences as shown by the usual physical tests employed for evaluating pulp. Some work done on determining the value of copper number tests in pulp specifications has shown the copper number values to be rather erratic and gave no indication as to the possible strength of pulp. For these reasons the chemical tests need not be included in pulp specifications as sufficient differences are shown by the more common physical tests, such as Mullen, fold and tear.

J. L. PARSONS: Since use requirements is closely linked with pulp classification, I am going to ask Mr. Heritage to present his contribution on "The Problem of Classification of Chemical Pulps" at this time. Mr. Heritage. (See Paper Trade Journal, Dec. 8, 1932.)

A Pulp Importer's Viewpoint

J. L. PARSONS: Several members have been invited to participate in brief discussions of the subject already considered with respect to pulp specifications. First, Mr. Westergaard has kindly agreed to discuss the subject of pulp classification from an importer's viewpont. Mr. Westergaard.

JOHANNES WESTERGAARD, (Atterbury Brothers, Inc., New York): When the chairman invited me to address you briefly on the subject of pulp classification it occurred to me that a few words from a salesman's or importer's viewpoint might be of some interest. I want to make it perfectly clear, however, that I am not talking officially on behalf of the importers or any organization, but merely expressing my views on the subject as I have thought of it since last night, and based on experience of selling pulp. The technical features have been touched on by the technical men here and there is nothing I can add to that. However, there are few things that have not been brought out but are rather important. The first is to distinguish between what can be done theoretically in a laboratory under ideal conditions and what has an actual bearing on practical operations in the paper mill and has a commercial value. The second point which I consider essential is to develop, and I understand that is being done, absolutely uniform methods of testing. Anyone connected with the selling of pulp within the last ten years can not help but notice the change in the trend of buying pulp which can be traced directly to the efforts of you technical men. It used to be so that you could visit a man and show him a sample and if he was in the mood you could get an order. Now the best you hope for is five pounds. Or if he is liberal he asks for ten pounds to be sent to his laboratory. You wire or telephone your office to have this dispatched immediately and when you come back a few weeks later to follow up, you frequently find the package on the top of his desk, so you have to go through the whole thing again and when you come back a third time the man will probably tell you the laboratory has turned your pulp down and that seems to be the end of it. That is where the Technical Association can do a lot of good work I think in developing standard pulp specifications. Naturally, the average buyer is loath to give out technical information about computing pulp values and rightfully so, but there should be no objection for him to refer in a general way to standard specifications established by TAPPI. This is where I believe the pulp producers, selling organizations, and paper manufacturers can benefit by standard specifications, provided they are kept within reasonable limits and that sufficient allowance is made for flexibility due to variations in manufacturing conditions, which will exist at all times. Another point is that mechanical wood pulp ought to be included in the work of the committee. My final point is that I believe it would be advisable to include the foreign pulp producers in participating in this work and I have two good reasons for making that suggestion. First of all I think considerable work along these lines has already been accomplished by foreign producers and there is no reason why we should not get the benefit of their experience and give them the benefit of our experience. Secondly, the work becomes futile unless we can get the foreign pulp producers to agree to these specifications, and it is much easier to get a man to agree if he is invited to participate from the beginning than if he is asked to accept as a fait accompli later. With these few suggestions I wish to thank you for the opportunity to express my viewpoint and may say that I am most heartily in sympathy with the association's efforts.

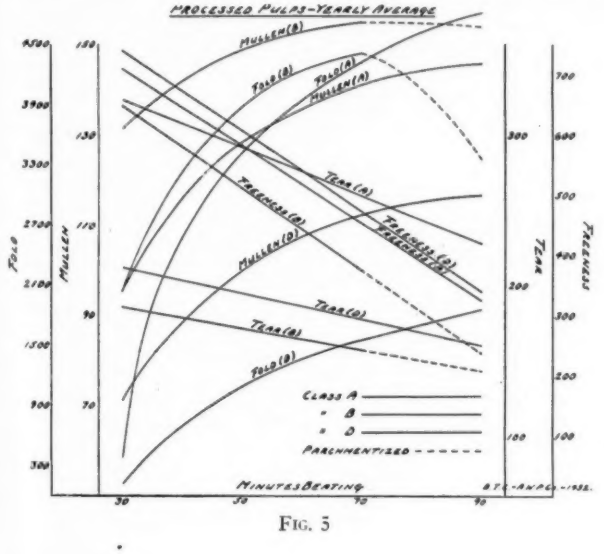


FIG. 5

J. L. PARSONS: Thank you Mr. Westergaard for your remarks. We are very much interested in getting the viewpoint of everyone in this field. I have another contribution from an importer but I am not going to read it. It is a written discussion and will be published in the proceedings of this symposium. The papers we have had this morning are open for discussion.

Written Discussion by R. J. Egan, Bulkley, Dunton & Company

The classification suggested by TAPPI Special Inquiry 183, seems to me to be fundamentally the type of classification desired. I am of the opinion that this classification should avoid any reference to physical properties or geographical origin as is outlined in the sub-headings in Special Inquiry 183.

Sub-headings under grades: 1—unbleached sulphite, 3—full bleached sulphite and 5—unbleached sulphate, are desirable, and therefore my suggestion to cover these is merely: A—hard grades, B—soft grades, this sub-heading to be the same for each of the three mentioned grades.

I also suggest that grade 4 be referred to as purified bleached sulphite—high alpha cellulose content rather than

chemically treated sulphite. My reason for this suggested change is that, designating this group as chemically treated sulphite, is a trend toward process designation rather than use requirement.

The designation of the various classes as above outlined, is in my opinion sufficiently general to embrace all grades of chemical pulp made, whereas any further attempt on specific sub-divisions I think, would lead to confusion of classification with specification.

If the committee feels that a further sub-division of 1, 3 and 5 is desirable because of the wide variation in the grades within each of these classes my suggestion is that the sub-divisions be made according to process of manufacture, which in a general way will coincide with use requirements and which will avoid confusion with specification. The use of these process sub-headings will also tend to conform to present trade practice in classification. The sub-headings which I suggest for these grades are as follows:

1. Unbleached sulphite
   - (A) Mitscherlich
   - (B) Indirect cook (other than Mitscherlich)
   - (C) Direct cook
   - (D) Easy bleaching
3. Bleached sulphite
   - (A) Mitscherlich and indirect cooks
   - (B) Direct cook
5. Unbleached sulphate
   - (A) Strong
   - (B) Light and strong
   - (C) Easy bleaching

J. L. Parsons: We have with us today Ernest Erickson of the Lagerloef Trading Company, New York, who has been asked to give us his viewpoint as a pulp importer on the present status of the paper industry's ability to specify, based on present knowledge of methods of pulp evaluation—Mr. Erickson.

Ernest Erickson, (Lagerloef Trading Company, New York, N. Y.): I think we can all agree, in principle, upon the desirability of furnishing the trade with means of expressing pulp qualities and values in exact numerical terms. At present pulp evaluation occupies a place in the pulp and paper industry as a valuable aid partly in selecting pulps but mostly in controlling the uniformity of quality and rightly so if results are intelligently interpreted in correlation to the equipment and the method of processing used in actual operation by the particular paper mill and if the limitations and errors of testing are recognized and discounted. The step from this general current practice to the suggestion under discussion here today is, however, radical. From being a limited aid in controlling pulp qualities laboratory evaluation of pulp is suggested to be made the basis upon which purchases are to be made and disputes settled. This is most definitely something very different. It means the adoption of an international yardstick for measuring pulp values.

I feel very keenly that we are not technically ready for such a step. The time is not ripe for adoption of a specification in cold figures, for the different strength characteristics of a pulp, upon which the purchases of this commodity is to be based. Our Association, The Canadian Pulp & Paper Association, as well as pulp and paper associations abroad, have for years, as we all know, systematically been working to perfect methods of pulp evaluation and as a result we have today three or more different methods of pulp strength testing, tentatively adopted by some of the Associations. However, it is not at the present so much the lack of definite standard methods which is the obstacle in our way, although the methods referred to above are only tentatively adopted, it is the lack of uniformity and accuracy in the practical application and execution of such standard methods now in use in the individual laboratories. This deficiency must be eliminated before we can proceed with the drafting of pulp specifications. Until this is done the pulp sample itself is still the most accurate and safest medium for conveying the papermaker's request to the pulp manufacturer regarding quality of pulp required. This may seem a rather harsh statement in our age of technical control, but it is so only on the surface. Strength testing enters into the picture even in this apparently crude method of exchange of information, inasmuch as the sample of pulp approved of by the papermaker, either based on an actual mill run, a laboratory test, or both, is tested by the pulp manufacturer and made the basis for future deliveries to this customer. This system of exchange of information has not been resorted to because of its convenience, but because experience has shown that exchange of laboratory test-figures is not as yet reliable enough, even when the same standard methods supposedly are used by the two laboratories. In other words, accuracy in applying standard methods of testing is still seriously lacking.

I wish to offer a constructive suggestion with regard to an approach to this problem, in order to assure some progress. I suggest that the Technical Association, through its committee on pulp testing, establish a close collaboration between the laboratories of the paper mills and between paper mills and pulp mills, also including commercial pulp testing laboratories, in order to establish the discrepancies now existing between the different laboratories and between individual operators, all of whom presumably are using the same standard method of testing. I cannot conceive of any better way of bringing out such differences than by distributing standard pulp samples, i.e., sample of one and the same pulp, to all of the participating parties and let the result speak for itself. This distribution of standard samples would have to be continued until the discrepancies in test results are eliminated. I wish at this point to sound an encouraging note by stating that despite the fact that this work may seem impossible it is not so because it has in the past been accomplished between smaller units in the industry. I cannot therefore see why it could not be made to include the whole industry.

Uniformity in strength testing must of necessity be attained not only with one standard method but with all of the standard methods now in use in the industry. These methods include the beater method, the pebble mill method, the English and American unbeaten pulp methods, as well as a few homemade procedures and modifications of the above standard methods. I am mentioning this because I do not believe that we will ever succeed in boiling down these methods to one standard method only, however, I sincerely hope that we will be able to eliminate some of them. This work is therefore closely interrelated with our efforts to standardize the methods of pulp evaluation. In this connection I wish to state that I feel that the association can count upon the wholehearted cooperation of the pulp manufacturers because they are the ones most genuinely interested in developing one reliable method of evaluating pulp and naturally so because it represents their only means of ascertaining and maintaining uniformity of quality, whereas, the purchaser, the paper manufacturer, always will judge the quality of a pulp from the practical result in the paper mill.

In closing wish to say that the suggestion which the association has brought up for discussion today is a thought of far reaching practical consequence, the value of which if and when attained, cannot be denied. The technical machinery however to support the adoption of a classification of strength and fibre quality in exact numerical terms,

as a basis for purchase of pulp, is still so imperfect as to make an adoption at this time impossible. The yardstick for measuring pulp values, available today, is not a standard one because it does not produce identical values in the hands of different operators. If a premature step is taken by the association in adopting a specification without the backing of an accurate testing method, chaos will result in the industry and seriously hurt the confidence in the work of our association. Again, if we approach our goal cautiously, by improving the accuracy of our technical machinery, a valuable contribution to the industry by our association will eventually be made.

D. W. McCready, (University of Michigan, Ann Arbor, Mich.): The evaluation of pulps by a group classification as presented by Miss Kiely is probably the most practical method of doing it. Our interest is in the final product the properties of which depend upon many processing variables. It is evident that the variations occurring in pulps in any one group may have less effect on the properties of the finished product than the variables occurring in the processing of this product and therefore it would not be practical to evulate the minute variations of the pulps.

One of the variables which greatly affects the physical properties of the finished sheet of paper whether made in the mill or laboratory is the shrinkage occurring on drying. In the mill shrinkage in planes parallel to the surfaces of the sheet is prevented and pulp testing should include a similar procedure. I understand that Miss Kiely has been using such a procedure and I would like to request her opinion as to its merits.

W. J. Burke, (American Writing Paper Company, Holyoke, Mass.): From our experience with all physical tests I would say to really make accurate tests the sheet should be dried under tension.

Paper Testing Methods

J. d'A. Clark, (Scott Paper Company, Chester, Pa.): I have listened with interest to the contributions on the question of pulp testing and specifications. It has been a matter of intimate concern to me for the past five years to try and establish methods for the evaluation of pulp in such a form as to be suitable for specifications. The Paper Testing Committee at the moment is trying to establish better standards for the physical testing of paper and one of the objects in view is to be able to draw up more clearly and exactly specifications for pulp. In a recent letter to members of the Sub-Committee on Physical Testing of Paper, I made some suggestions towards specifying more accurately and in greater detail some of the usual tests such as tensile, stretch, burst and fold, but I think the reaction has been in general, why be so fussy about details?

It is going to be impossible to accurately specify qualities of pulp unless we have accurate paper testing methods with which to test the sheets. After all is said and done, drawing up specifications for pulp or paper infers a contract between buyer and seller which on dispute may be subject to court action where the wording of the specified tests would necessarily need to be sufficiently definite, precise and comprehensive to withstand argument. There is no question but that a number of users and producers outside the United States have done a tremendous amount of work along the lines we are now working and have established among themselves and others to a greater or lesser degree, standards of pulp and paper testing. Many of us are purchasing part of our requirements of pulp from abroad as there are material reasons why in drafting specifications for the testing of pulp or paper, we should be more internationally minded. May I make a plea to develop all standard methods so that they can be regarded as sufficiently definite to be able to serve as accurate reference points which when established will leave technicians free to modify the standard methods in any way to suit their own requirements or even to use their present methods and employ correction or conversion factors where necessary? Let us draw up standard methods which are real standards, which can be specified in contracts without ambiguities, and which can be precisely understood and interpreted all over the world.

Stability of Pulp Properties

G. A. Richter, (Brown Company, Berlin, N. H.): In the first place I take it that most of the work has been done on sulphite pulp, inasmuch as there appears to be a general feeling that it is very difficult to obtain a pulp which is high in both strength and tear. I want to bring out the fact that such is not necessarily the case if we include in our pulp specifications all types of fiber. We know, for instance, that a kraft pulp develops its slowness less rapidly than does a sulphite fiber, and that it develops high fold and tear as well as high strength. We also know that there are white pulps on the market of a bleached kraft type, and that some of these pulps are as white as bleached sulphite and possess a peculiar combination of tear and fold when beaten correctly.

The other point that I want to emphasize is the relative importance of stability of these pulps. Color has been emphasized and I think it is important, but we know that many times a pulp when sampled has a color far different from the same pulp when taken out of storage two weeks hence. We should realize that color and strength and fold are not necessarily permanent features of a purchased pulp any more than in the case of rag stock. For that reason, I think that it is advisable and worth while to consider not only the physical tests, but to designate the pulps in terms of color and stability. Many of our high-grade paper makers are using more wood pulp with their rags than was the case twenty years ago, and it is quite probable that this percentage will be increased very definitely as the years go by. In view of such mixed furnishes in high-priced papers, we must consider the stability and permanence of all the ingredients concerned.

Contribution from Chairman of the TAPPI Pulp Testing Committee

D. E. Cable, (U. S. Rubber Company, Passaic, N. J.): I would like to say that pulp testing methods should be regarded primarily as a means to an end in revealing to the technical supervisor an approximate idea at least of the strength or other physical properties that one might expect in the manufactured paper, judging by corresponding physical properties of the pulp or pulps of which it is largely composed. With this thought in mind it is my sincere wish that pulp testing and paper testing methods be placed in each mill on the same identical level, if it is humanly possible to do so as regards units of measure or means of expressing quantitative results. My thought is particularly directed toward the present multitudinous ways of expressing Mullen strength of pulp as practiced in various mills throughout America.

Miss Kiely and her associates have favored us with interesting statistical data regarding the classification of pulps according to high, medium and low Mullen strength and according to good, average and poor degrees of other physical characteristics such as tearing resistance, tensile strength and folding endurance. They consider pulps as being in the class of high Mullen strength if found to

possess 140 units or more. These units are no doubt defined by the following empirical expression as published by Reiser in 1917 (Paper *20*, No. 12:35-37)

$$\text{Strength factor} = \frac{\text{Sum of 16 burst readings}}{\text{Weight of 4 sheets (4"x7") in grams}}$$

This is obviously quite different as to magnitude of empirical strength units than is the following empirical expression which was really the first standard TAPPI expression of bursting strength units for pulp test sheets:

$$\text{Strength factor} = \frac{\text{Sum of 16 burst readings}}{\text{Weight of 4 sheets (7"x9") in grams}}$$

This expression was adopted in the autumn of 1916 on the recommendation of R. B. Wolf and his committee (Paper 19, No. 9:11-19 Nov. 8, 1916).

A third method of reporting bursting strength of pulp test sheets was proposed in 1921 by Mair and Collins (Tech. Assoc. Papers IV, no. 1:6-7, 29) and depends upon the following mathematical operation:

$$\text{Strength factor} = \frac{\text{Sum of 16 burst readings}}{\text{Weight in grams of 4 sheets (6" x 7")}}$$

The first attempt at resorting to a rational means of expressing bursting strength of test sheets that liberates the factor from a close association with a certain specific area of test sheet was suggested in 1920 by K. G. Wilen who resorts to the following empirical formula which is still widely used in the States and in Canada:

$$\text{Strength factor (called "per cent points per pound per ream")} = \frac{\text{The average Mullen of 5 bursts} \times 100}{\text{Average ream weight in pounds per ream of 24 x 36—480}}$$

This is closely related to the present TAPPI official standard method of expressing Mullen or bursting strength of paper except that in the latter case the denominator calls for the average weight for an arbitrary ream area of 25 x 40—500. Many see no sense in using this particular ream area rather than the ream area regarded as standard in their particular mill. Unfortunately trade custom now dictates a number of widely differing ream areas throughout the country, at least one for each kind or grade of paper being marketed. In order to avoid the meaningless confusion that would result throughout the paper industry if Mullen strength units were made to vary in magnitude directly according to the special ream area in common vogue at the laboratories where the papers are being tested it was wisely decided by the TAPPI paper testing committee to choose and make use of but one and only one standard ream area, namely 500,000 square inches (25 x 40—500) in so far as paper strength testing calculations are concerned.

Inasmuch as Mullen strength units according to TAPPI standard paper testing methods are governed by the weight in pounds of the arbitrarily selected half million square inch ream area would it not be logical to extend this same broad standard to the expression of Mullen strength in regard to the examination of pulp test sheets as shown by the equation:

$$\textbf{The TAPPI Strength factor (as per cent points per pound per ream)} = \frac{\textbf{The average Mullen of 10 bursts (or more)} \times 100}{\textbf{Average ream weight in pounds per ream of 25 x 40-500 (as measured after air conditioning at 65 per cent R. H. and 70 deg. F.)}}$$

If all laboratories in North America would today revise their pulp testing methods of expressing Mullen or bursting strength so as to conform with this single official standard paper testing equation a lot of confusion and misunderstanding would be avoided hereafter in comparing results of various laboratories and in arriving at a quality value which has a clean cut, definite meaning to those primarily engaged in making or in testing of paper. Let us all,—pulp testing chemists as well as paper testing chemists, talk a common language by conforming strictly to units of bursting strength value which are recognized as standard by the paper testing committee. These units or factors are abstract entities which are incapable of being visualized unlike many of the common units of weights and measures. Let us therefore avoid the present chaotic situation which finds nearly as many empirical bursting strength units of expression as there are brands of cigars or makes of automobiles.

In order to achieve this unanimity of action within the membership of TAPPI the writer appeals to all technologists who are in a position of sufficient authority in pulp testing laboratories to modify or revise present arithmetical expressions in the calculation of results so as to obtain values that fit the above standard equation for bursting or Mullen strength. This effort should indeed be made when contributing technical articles to the association for publication. It is considered equally important that this change in practice (if necessary) be made also in all control testing work even where the results are not available to parties outside of the mill in question.

This alteration in policy does not mean the necessity for making any change in equipment or in operating technique, unless it is a matter of obtaining a higher degree of precision by conditioning test sheets at 65 per cent relative humidity and 70 deg. to 75 deg. F. Test sheets may still be made according to any convenient size. All that is required is the application of a certain conversion factor by which present results may be multiplied to obtain the standard units of expression. It is but a simple case of arithmetic to decide just what this numerical factor is for each laboratory or individual. For the benefit of yourself as for that of others please make this change (if required) now or at least by the end of the present calendar year.

Correlation of Ball Mill Tests with Mill Practice

C. E. PETERSON, (Riegel Paper Corp., Riegelsville, N. J.): In the matter of correlating ball mill tests with mill operations we have adopted a method of rating pulps that is working out very satisfactorily. From a large number of tests on each type of pulp we determine the average value for beating time, tear and Mullen at slowness of 500, 400, 300 and 200 cc. These values are set up as arbitrary standards. Average deviation is also determined in order to allow for normal variations in the pulp and for experimental errors in testing. The so-called standard pulp in each class, that is, kraft, bleachable sulphate, unbleached sulphite, etc. is a pulp whose properties are well known from a practical papermaking standpoint. In evaluating samples of new pulps or carload receipts, a comparison is made with the standard at each of the mentioned slownesses. This comparison is expressed in percentage terms, and then the four values are averaged to give a comparison over the entire curve. Continuous shipments of any one brand of pulp should, and usually do rate close to 100 per cent for beating time, tear and Mullen by this system. A variation of plus or minus 5 per cent is allowed for a rating of normal; 85 to 95 per cent is called fair, and future shipments are watched carefully. Pulps rating below 85 per cent are called poor, and in this case check tests are run in order to definitely establish the fact that no error has occurred in testing. When a sample of a new or unknown pulp is sent to the laboratory for testing, it is evaluated in the same way against the pulp with which it is competing. If the comparison is favorable and a lot ordered, the shipment is compared against both

the standard and the original sample submitted. This practice has worked out to be good protection for both the buyer and the seller. The beauty of this method of evaluation is that we obtain a very concise expression for the strength and hydration qualities in terms readily understood by everyone concerned. The mill superintendent, as a rule, has neither the time nor the inclination to compare graphs and long tables of test data. But when he is informed that New Pulp "X" hydrates in 90 per cent of the time, and develops 100 per cent of the strength of Old Pulp "A" he knows at once how to handle it in the mill to get the desired results.

It occurs to me that TAPPI might possibly prepare and hold available a number of so-called standard pulps in each class which could be used in the manner described. This would correspond to the Bureau of Standards procedure in supplying samples of ore for standardization purposes. In this way the difficulty of having a dozen or more testing methods could be eliminated, since each laboratory would use the same method at all times and the comparison and developed specifications would be in terms of pulp variables only.

JOHN TRAQUAIR, (Mead Corporation, Chillicothe, Ohio): I would like to say for the Fibrous Raw Materials Committee that it was practically forced into undertaking this job. The demand for specifications was becoming insistent, but it was with considerable trepidation that we tackled the problem—naturally we decided to start with sulphite pulp. Specifications involve standards and tests, and our physical tests for pulp are still empirical. Strength development on beating varies not only with the pulp, but also with the type of beater used. Paper mill laboratories use standard type beaters, pebble mills, ball mills, rod mills, etc. In the industry the trend is towards refining machines which supplant both beater and jordan. In sheet making the trend is towards greater accuracy in making the hand sheets, pressing and testing them, but the tests in spite of additional accuracy and standardization are still empirical tests.

Chemical tests may be of greater importance, as the non-cellulose constituents, pentosans for example, play an important part in the strength development and paper-making qualities of a pulp.

In devising any specifications we will have to keep clearly in mind the use requirements of the pulp. In spite of the variety of use requirements there is ample room for specifications covering the basic physical and chemical characteristics of pulps and these specifications can be used with profit to the industry.

The committee asks for assistance and cooperation from every member, because it realizes it has a big job on its hands.

J. L. PARSONS: Owing to the lack of time I am sorry that we shall have to curtail further discussion but before proceeding with the next subject Mr. Abrams suggested that we take a minute or two for recess.

American Writing Paper Company Buy on Specifications

J. L. PARSONS: I have been informed by Miss Kiely that Mr. Reynolds would like to speak on specifications to fit in with the subject under discussion.

L. C. REYNOLDS, (American Writing Paper Co., Holyoke, Mass.): We have been buying pulp on specifications for the past two or three years, and started this procedure because of the indefiniteness as to details of quality when disagreements arose between our paper makers and the sellers. What we did was to first test the pulps for four simple physical characteristics, namely: strength, color, freeness, and dirt. The average of these tests over the previous year was incorporated in our pulp contracts as being the figures which they were to aim at in any pulp shipped under the contracts. It has proven out that every time we have trouble, there is a wide variation from the specification in some particular. You can see that we have approached the subject not from the viewpoint of arriving at standard specifications, but from the viewpoint of holding the pulps to their own standards; in other words, we have created hitching posts to tie fast to when disputes come along, which disputes have been practically eliminated because we have been able to warn the mills when pulps were falling down, and it has been easier to determine which pulps are the most uniform. We have had considerable difficulty in executing these contracts because of the specification feature, but have gradually convinced some of the sellers that it is to our mutual interest. Whenever new ideas, such as this are presented, we generally find the personnel divided into two camps. There is always a group who wants to find every reason why the new idea can not be adopted, and there is always another group who is trying to find ways and means to adopt the new idea and avail themselves of its advantages. We have much the same line-up here on this subject, and it is largely a matter of bringing the first camp over into the second camp, and when that is accomplished I believe we will readily find ways and means of making a start and eventually accomplishing the objective of pulp specifications.

J. L. PARSONS: Thank you Mr. Reynolds for your remarks. The next subject to be considered in our symposium is that concerning the present status of our ability to specify, based on methods of evaluation. This will be introduced by a paper to be presented by Mr. J. J. McDonald. I have pleasure in introducing Mr. McDonald. Mr. McDonald read his paper.

Status of Our Ability to Specify, Based on Method of Evaluation

J. J. MCDONALD, (Brown Company, Berlin, N. H.): The intelligent buyer of today prefers to buy on specifications wherever it is possible, and whenever the good that results is not overshadowed by an increase in the cost of the commodity.

The buyer of copper, for example, can demand a product possessing certain characteristics which are of particular interest to his industry. Iron, steel and numerous other raw materials can be purchased on a similar basis.

In every instance, however, these charactertistics can be measured by tests that have been universally adopted by the manufacturer and the consumer. The information describing these characteristics is expressed in such terms and units that it can be interpreted not only as a means of comparison between different lots, batches or shipments, but also as determining directly the usability and adaptability for a specific use.

This is possible because by nature the inorganic or metallic material is to a great extent uniform and does not materially differ in origin.

When we consider organic substances such as leather, and cellulosic materials such as cotton and wood pulp, the picture is entirely different.

In leather, for instance, the type of animal and the conditions under which it has lived, determine the class of hide. The class and the grade is also designated by certain characteristics which the hide possesses. These characteristics in turn specify the use to which the material can be placed.

So it is also in the case of cellulosic materials such as cotton and wood pulp. The value of cotton is limited by many factors, but it is sufficient to mention that climate and soil play no small part in determining the quality of the fiber that can be produced from this plant. The base

of wood pulp, namely wood, has a greater number of limiting factors than does the raw material of any other cellulosic product.

Consider the various kinds of wood used in the manufacturing of wood pulp. We have spruce, fir, hemlock, pine, birch, aspen and poplar. Each of these woods will produce certain grades of pulp, depending on the process used in fiber liberation and refining.

We find that not only is there a variation in the pulp produced from these woods by the four processes, namely: sulphite, sulphate, soda or alpha, but also that even under any given process, pulps entirely different in physical properties and chemical characteristics can be obtained, depending on the origin of the wood. For instance, a spruce wood from our northern woodlands, although treated under similar conditions as a western or southern spruce, will yield a pulp possessing different physical and chemical properties, such as slowness, bursting strength, tear, fold, color and chemical contents. And why? Because we start from a non-uniform base material, wood.

Because of this fundamental lack of uniformity of the basic material, each of these grades differ from the others in many respects.

On the other hand we find that there is a distinct use for each of these types of wood-fiber under present day conditions. For example, the manufacturer of waterleaf paper demands pulp of certain characteristics. If he is a manufacturer of blotting paper, he is interested in obtaining a pulp that has bulk, absorbency, and medium strength. It must also be one that will not hydrate too quickly in the beating process.

A pulp desired for waterleaf papers such as are used in the Bakelite industry, must possess different characteristics. In this case, resistance to heat and capability of producing a paper of high tensile properties are of paramount interest, in addition to absorbency, bulk and physical strength.

The vulcanized fiber manufacturer has additional demands to make on a fiber that will be adaptable to his products. In his case chemical properties as well as physical characteristics are of the utmost importance.

The glassine manufacturer finds that an undercooked pulp that is capable of hydrating quickly and of producing a dense, transparent paper is most serviceable.

The maker of fine paper requires a vast variety of pulps, each possessing certain physical characteristics that make it fit in with the grades of paper he produces and with his manufacturing equipment. In general, he is interested in slowness, physical strength, color, cleanliness and relative permanence.

And so we find each branch of the industry, interested in some particular group of physical and chemical tests, which are of the most significant importance to that group alone.

In the past the methods used to evaluate pulps were very indefinite and unreliable. Each and every pulp manufacturer and consumer set up tests and procedures of his own devising so that there existed numerous methods, but none that was comparable. The individual paper mills were interested in certain characteristics and each one worked out means of evaluating the pulp it consumed, in respect to these particular physical and chemical properties.

The result has been that in place of a simple identification for papermaking fiber by a small number of well constructed and direct tests, we now recognize a confusingly large number of physical and chemical characteristics, none of which is important to the entire industry. For example, it is possible to determine the slowness, shrinkage, strength, tear, fold, tensile, bulk, absorbency, opacity, alpha cellulose, copper number, and a great many other physical and chemical properties of any one grade of fiber.

In recent years, through the efforts and splendid work of the Technical Association of the Pulp and Paper Industry, tentative methods have been devised and adopted, so that now we have a means by which each and every mill and laboratory can make determinations that will be comparable in all respects.

This much having been accomplished, it now remains for the manufacturer and consumer to devise ways and means whereby they can work in close cooperation in an effort to define in terms and units which will be universally understood, the requirements of the particular pulps that apply to their grades of paper.

Until this phase of the problem has been thoroughly and constructively worked out, it would seem impossible to set up specifications for a given fiber, that will meet with any very wide acceptance.

The problem covers too wide a field to warrant suggestions through the medium of this paper. Constructive results will be best obtained through the investigations of committees that are made up of individuals selected from each of the major classes of pulp and paper manufacturers, and who are capable of interpreting the application of the results from a laboratory determination to conditions existing in the mill.

In conclusion it may be said that at least from one viewpoint it appears that we are not yet in possession of sufficient knowledge of the requirements of the different branches of our industry, nor have we yet agreed upon a general classification of pulps that enables us to intelligently set up specifications that can be universally adopted.

J. L. Parsons: Thank you Mr. McDonald. Dr. H. C. Schwalbe has kindly agreed to participate in a brief discussion of this subject. Dr. Schwalbe.

H. C. Schwalbe, (Dill & Collins Company, Philadelphia, Pa.): The decision of the Technical Association to include in our program today the question of how far we are able to specify pulps, is certainly a very excellent one. Over a period of years we applied strength tests in mill control work, the evaluation of successive shipments of pulp, the selection of offered pulps and in research work. In the early days most men in the industry thought that such development was impossible. Yet we have seen how the tests were gradually improved and how one laboratory after another adopted the practice of testing pulps for strength. Today we are able to check our pulp tests with fair accuracy, and errors in tests of the same pulp are not higher than 3 to 5 per cent.

We were much less successful in general in checking tests of the same pulp in different laboratories. Some years back such investigations showed 30 to 50 per cent variations. But through the work of a number of strength testing committees in many countries we now have quite an accurate procedure, and we can get very similar results.

If the method varies in important details, no agreement can be expected. The excellent work of Mr. Doughty, of which we heard, has shown clearly, why we obtain different results, when we vary the conditions of sheet formation, pressing, drying, etc. But Mr. Doughty has also shown that it is not at all a hopeless problem to get uniform results. Since we know the cause of the deviations now, it should be less difficult to improve the tests so that they are satisfactory for the purpose of specifications.

The influence of different beating equipment troubled us very much, but here too progress was made. Dr. Bergman of the Central Laboratory in Finland has proven that the tests of the experimental beater and the ball mill can be interrelated. He also gives mathematical expres-

sions of the connection between the different characteristics, such as bursting, tearing and folding strength.

As mentioned before the mill tests very often were not made according to the standard method, but in any convenient way, using the old, existing equipment. Such tests do not check with the tests of other laboratories. Still they are not so bad that the general characteristics would not be the same in all tests. For comparing various pulp samples the data we can obtain in the laboratory is satisfactory for if the best pulp was rated 100 per cent, the medium uniform pulp got a 60 per cent rating in spite of the different testing methods.

It seems to me that it is now the right moment to begin the preparation of specifications. At first they will not be ideal, but they will be an incentive to adopt more logical, well defined terms and to give up the confused generalizations of the present. Specifications will help to improve the testing procedure of the pulp and paper mills. Today the mills do not know how far they vary from the standard test, and only the few mills which have participated in the work of the strength testing committees had the possibility to see where errors were made.

I can confirm this from my own experience. We thought that one point of our procedure was perfectly correct or of minor importance, until in the cooperative study of one pulp we found that we had overlooked an influential source of error.

Laboratories with experience in pulp evaluation and a procedure according to our best knowledge should test a group of pulps, which are widely and generally used. These findings and samples of the tested pulp should be sent to a large number of mills, which would retest them and which would learn in this way where and why their tests differ from the official tests. The next step would be that such official tests would be made the basis of tentative specifications and the same laboratories or as many as are able to produce accurate tests should be named as independent testers to decide about discrepancies. The mills should be urged to improve their methods and the standard laboratories should issue reports of their practical experience. We will progress much quicker if we can get cooperative effort regarding the study and come to an agreement on terms used so that we can adopt a standard form in well defined terms.

In the beginning we should write many properties into the specifications, for instance bursting, tearing and folding tests after different beating times, limits for color, dirt, curl, hardness or softness, absorbency and chemical constants, etc. With more knowledge the form could be simplified. We should not choose only beater values or similar simplified formulas now, but it may be well to calculate them and to try them out under varying mill conditions. Such a program may seem very ambitious, but just such a determined effort was necessary to start strength testing. We should therefore endeavor to work up specifications for the benefit of the paper industry.

J. L. Parsons: Because of the lateness of the hour there does not appear to be time for further discussion. William R. Willets of the Western Electric Company and Warren F. Moore of the U. S. Testing Company, have sent in a written contribution to this symposium, because neither of these members could be present this morning. The manuscript, entitled "Requirements of a Pulp Testing Method," will not be read at this time but will appear among the papers contributed to the symposium. May I mention, however, that Messrs. Willets and Moore stress the importance of (1) detailed test methods, and (2) permissible tolerances based on actual mill practice in any specifications for pulp?

Requirements of a Pulp Testing Method

Written Contribution by W. R. Willets and W. F. Moore

Any specification for pulp (or for that matter any raw material) should embrace two main features; (1) detailed test methods, and (2) a method for describing results, with permissible tolerances based on actual mill practice.

To date almost innumerable articles have appeared in the literature covering the first item—we have a tentative standard beating procedure, several methods for sheet making, description of various instruments such as folding testers, bursting strength testers, tearing testers, etc. In many cases these testing instruments have been submitted to intensive study. Likewise the chemistry of pulps has been the subject of considerable investigation resulting in tentative standard methods for alpha cellulose, copper number, viscosity, solubility, etc. In brief, it seems apparent that there are methods of sufficient accuracy in the hands of skilled operators to permit of drawing up a set of definite pulp specifications for the various grades.

However, even if this were done, just what meaning would such specifications have? On what available data could tolerances be based? Certainly very little regarding the subject has appeared in the literature.

To consider one test only, the alpha cellulose test—just what should be the minimum requirements for a bleached sulphite for use in book paper? To date many articles have been published giving methods and results of tests on a wide range of pulps, but have these results ever been applied to mill practice? If they have, little or nothing has appeared in the literature. For example, has anyone ever published data proving that pulp having an alpha cellulose content of 85 per cent is superior as far as running qualities on the machine, strength, permanence and printing qualities to a pulp having an alpha cellulose content of, say, 80 per cent? Undoubtedly some of these factors have been touched on, but rarely, if ever, from a practical mill standpoint.

The same applies to practically every test, physical as well as chemical, which has been applied to pulp.

The question naturally arises, how are we to specify tolerances, on what are they to be based? The answer is simple, on actual mill practice and use requirements. The inference from this answer is likewise simple—information regarding the specifying of tolerances must come from the mills themselves. To date there has apparently been a reluctance on the part of the mills to publish their data relative to laboratory findings and mill practice. The mills have the facility for obtaining such data, and unless their reluctance to publish their results is overcome the framing of specifications cannot proceed very rapidly or very far.

There seems little doubt that pulp suppliers, both domestic and foreign, would be happy to see specifications put forth as it would assist them in their sales work by permitting the description of a pulp quantitatively as well as qualitatively, and furthermore would permit them, definitely, on results based on a specification to designate a pulp as suitable for book, newsprint or any other grade of paper.

A question often asked can be summarized as follows. "What can you tell me about this pulp which will aid me in selling it to the mills inasmuch as the laboratory figure shows a five percent increase in strength? Is this due to an inherent variation in the pulp or could we say that this grade is definitely better from a papermaking standpoint than another grade?" Until such a question can be answered, pulp suppliers can not be expected to enthusiastically support the framing of specifications, in fact until

such a question can be answered pulp specifications can mean but little.

And the question can only be answered by the mills themselves, the answer to be based on a careful correlation of laboratory and mill data, and to go one step further, to correlate these results with the results obtained by the ultimate consumer. And to secure the real worth from such a correlation as far as the industry is concerned reliable facts and figures must be published.

Until this is done the work of framing useful pulp specifications must be very definitely retarded.

Pulp Color

J. L. PARSONS: For the last item on the program of the symposium we shall have only a few minutes, namely, the measurement of pulp color. This subject will not be introduced by a paper; rather, there will be several brief discussions. Many Association members have indicated that "pulp color" is a most timely subject to discuss and that a reliable yet simple method for determining color on a scientific basis is most desired.

In any discussion of color it might be well to start with an approved definition of the term and a brief mention of its attributes. According to the report of the Colorimetry Committee (1920-21) of the Optical Society of America, color is the general name for all sensations arising from the activity of the retina of the eye and its attached nervous mechanisms, this activity being, in nearly every case in normal individuals, a specific response to radiant energy of certain wave-lengths and intensities. Color cannot be identified with radiant energy, although the latter is the adequate stimulus for the former. This is because color is known to depend upon the presence and character of the perceiving individual and because it is directly recognized to be something radically different in kind from its stimuli. Color cannot be reduced to terms of any purely physical conception; it is fundamentally a psychological category.

The three attributes of color are:

(1) Brilliance (luminosity, brightness, tint, value, visual brightness)—an attribute of any color by means of which it may be classed as equivalent to some member of a series of grays ranging between black and white. It is that quality which distinguishes a light from a dark color.

(2) Hue—an attribute of certain colors by which they differ characteristically from the gray of the same brilliance and which permits them to be classed as reddish, yellowish, greenish, or bluish.

(3) Saturation (purity, chroma)—an attribute of all colors possessing a hue, which determines their degree of difference from a gray of the same brilliance.

Although the terms colorimetry and photometry are more or less employed synonomously, the essential difference between them may be found in the following definitions. By colorimetry is understood the measurement of the depth and qualities of a color by comparison with a standard color; in photometry the relative intensities of the same wave lengths of light from two sources are measured.

May I make particular mention of the recent article on "Color Specification in the Pulp and Paper Industry," by Mr. W. B. VanArsdel of the Brown Company, as worthy of reading and study to anyone interested in the subject of color measurement. This article originally appeared in the Journal of the Optical Society of America, issue of June 1931, pages 347-357, and has just been reprinted in the August 11th (1932) issue of the PAPER TRADE JOURNAL. In Mr. VanArsdel's paper is described an improved modification of the old TAPPI comparator wheels for evaluating pulp color.

First I am going to ask Mr. Baird of the Forest Products Laboratory to briefly summarize his experience with the Ives tint photometer as an instrument for measuring pulp color. Mr. Baird.

Ives Tint Photometer

P. K. BAIRD: I am not going to talk more than a minute. We have used the Ives instrument at the Forest Products Laboratory for ten years in the control of color in bleaching and stuff preparation. It has been a fairly successful instrument, but is subject to variation in the operator's eye. It is not as highly satisfactory from the scientific standpoint as some of the more recent instruments. Most of these instruments are too expensive so we are still using the Ives. The determination of pulp color in sheet form, of course, is complicated by some additional sheet properties in paper such as surface characteristics, sheet density (solid fraction, etc.) which complicate the problem. We believe that one of the first duties of the association should be the standardization of a method for the measurement of color, and perhaps from many standpoints we should agree upon at least a fairly cheap instrument for the time being until a more scientific one is adopted.

Pulp Color Discs

J. L. PARSONS: The old TAPPI color wheels, as modified according to Mr. VanArsdel, have been used by the Brown Company for some time and I am going to ask Mr. Richter if he will kindly inform us of his experience with these modified wheels. Mr. Richter.

G. A. RICHTER, (Brown Company, Berlin, N. H.): With the variety of pulp which we happen to make, it becomes necessary that we know about color. We have gone over the instruments on the market including the Ives and others, but today we have been unable to use such instruments which express color in terms of three or four units successfully, mostly from the standpoint of cooperation which has been unsuccessful particularly for the practical mind. Therefore we have standards arbitrated on a color wall which has been used by the organization for many years. We have changed that wall to cover color by means of schemes of color in the wall. In other words instead of tinting a background of carbonate we have taken a standard white of calcium sulphate and have put in the wall other coloring matter and have found by experience that pulps from different origins have in them different colors and classifying our pulps in two or three classes we are able to use colors considerably for those grades of pulp. I can say the methods being used are quite satisfactory and the best practical system existing now. I wish to point out that very often in color measurement the color of pulp appears to be instilled when measured in the ordinary way, either when measured by surface felt marks or if the pulp has been in storage a long time, and color has migrated to the surface. In that case a split sheet will show an entirely different result. The same pulp will show different color within three or four weeks, depending on its light, etc. I believe that ultimately the color standards will result in color units. At the present time I have seen no method that is satisfactory, but hope that such will be developed in the near future.

General Electric Color Comparator

J. L. PARSONS: Dr. Lewis of the Mead Corporation has told me that he has been working with the General Electric color comparator (not the analyzer) with especial reference to the measurement of the color of paper. His experience with this instrument in the evaluation of pulp color has been rather limited but he has graciously offered to tell us something about the use of this instrument. I have much pleasure in introducing Dr. Lewis.

L. C. Lewis, (Mead Corp. Chillicothe, Ohio.): In establishing a useful test for such an important quality as color there are certainly two steps. We must first decide upon a most useful, simple definition of color; we must, secondly, learn to measure that so defined property of paper exactly.

As for the first step, the responsibility lies with the TAPPI to consult its members (and ultimately their customers)—as well as with specialists in color measurement. Then a wise choice of definition for color may be made out of the many possible with different combinations of angles of viewing, angles of lighting, etc.

As to the second step a large amount of progress has been made by the members of this Association; but within the past few years a very important contribution has been made by the electric companies in their development of the electric eye—the photoelectric cell.

My experience indicates that the electrical color comparators using modern photocells and balanced circuits (I have worked with the G.E. instrument) are using eyes which are a great improvement on the human eye for speed, sensitivity and reliability.

Obviously we must ask—Why replace the human eye? The use requirement here considered is to satisfy the eye in reading the printed sheet—or in viewing the sheet under somewhat different conditions. Why bring in an electric eye to complicate matters?

The answer lies in the fact that the human eye varies so much from time to time, person to person, background to background that a good artificial (electric) eye (good means absolutely steady in response, sensitive to the colors encountered, etc.) is our only choice.

We think of the eye as very sensitive: as it is in being able to distinguish at least 200 hues in the spectrum, detect brightness differences of 2 per cent. (I have found most men trained in the paper industry to match colors can detect brightness difference of 0.5 to 1.0 per cent.)

So is the human memory sensitive—but we all recognize its defects. We must recognize that the eye is nearly as variable as the memory: and a comparison of the two is instructive here.

The eye seeing a bright light and glancing away still "remembers"—or sees that light in dimmer form against any darker object. As the memory of an event is weakened by observing some other event going on simultaneously—so the eye perceives a different hue in the same sheet of paper depending upon whether the background is black, white, or colored. And as one man's memory may be good for patent numbers—poor for faces—another man's just the opposite: so the color sensitivity of no two men is exactly alike. Scientific work with the eye must be preceded by a half hour in a dark room previous to the tests.—and so forth—all facts illustrating the many defects of the eye investigated thoroughly by physiologists and physicists of the past 75 years.

The new instruments have a perfect memory—filed cards with the readings enable a color to be matched as long as the files last—the new product being dyed to give the same instrument readings as the original. The silk industry is already filing readings of the color analyzer in place of silk samples—as standards. We know the instrument readings of our comparator to give us much better matches than those with paper samples filed in the ordinary files for even a few months.

The eye has been definitely replaced for brightness measurements as the color comparator readings check to 0.1 per cent—0.25 per cent (much smaller differences than the eye can detect)—the readings are quickly made as the instrument is stable.

The color problem is reduced to part I. The association should take steps to standardize the definition of color—the definition for pulp will probably differ from that for paper. I should like to suggest the use of the quantity called ALBEDO by the physicists. This is the ratio of total light diffusely reflected at all angles from a sample to that incident upon it—the angle of illumination being standardized at say 45 deg. to the normal. This ratio for several colors (with from 3-7 filters in present system) gives a complete standardized color record. It would be even more exact if done for all colors as in the color analyzer.

Summary of Pulp Specifications Symposium

J. L. Parsons: I greatly regret that more time is not available for the further discussion of these subjects, and that this symposium must be brought to an end. We are greatly indebted to those members who have so willingly contributed to this symposium and on behalf of the co-operating Divisions may I extend to you our thanks for your assistance.

Before proceeding with the last paper on this morning's program, I would like to summarize some of our accomplishments. As I have intimated it is the purpose of this Association not to force specifications for pulps, but rather to assist in the logical development of specifications. Messrs. Baird and Doughty have submitted for our serious consideration a scheme for designating the required properties in a pulp as related to its use requirements. In addition a classification of the test methods for pulps based on a decimal system is suggested. This paper is indicative of considerable thought in the right direction and should be of considerable assistance to committee study on this subject. From the discussions this morning it is evident that during the last five years or so there is a definite trend towards more adequate specifications for pulps. In other words, with increasing knowledge of fabricated materials and their processing, there has been a growing demand for raw materials of suitable specifications. After all, are not specifications accurate descriptions of the properties desired for materials?

Mr. Heritage has recommended that careful attention be given to the following methods by which a given product, such as pulp, may be described or specified: (1) by delineating the use requirements of the product; (2) by setting forth the properties of some further fabricated material, or (3) by numerically expressing the composition and properties of the product. He has offered a scheme for the classification of chemical pulps, employing the following properties: color, bleachability, duration of refining action, developed strength, developed freeness, and dirt. He is of the opinion that this scheme is in line with current mill practice and that it should be capable of being developed to a very useful tool in the buying, selling and producing of chemical pulps.

The necessity for cooperation among manufacturers, consumers, importers and converters of chemical pulps in any Association activity concerned with specifications has been stressed in this symposium. We have also been cautioned that in our consideration of specifications, the entire field of chemical pulps and their uses should be considered and no restriction be made to any one grade for any single purpose. Thus there are chemical pulps not only for paper but also for regenerated cellulose (such as rayon or cellophane), chemical compounds of cellulose, boxboard, insulation material, fillers for synthetic resins, etc. It appears that the manufacturers of chemical compounds of cellulose were among the first to recognize the need for specifications in purchasing chemical pulps which is their basic raw material. In the further study of this subject the Association will depend on the enthusiastic cooperation of the members, many of whom have already indicated their willingness to assist in this activity.

Mention has been made this morning that preliminary to the development of pulp specifications with suitable tolerances, standard methods for the adequate characterization of pulp properties must be available. The work of the Association in the development of testing methods will be greatly facilitated after the contemplated TAPPI Manual has been issued. A plea has been made for mills to publish facts and figures covering a careful correlation of laboratory and mill data with those obtained by the ultimate consumer of pulps.

The subject of pulp color has not been given the consideration it deserves because of the lack of time. Many manufacturers feel that this subject, however, is one of the most important on the symposium. It is hoped, therefore, that adequate time for the discussion of the measurement of pulp color can be had at another meeting of the Association in the near future. Mr. VanArsdel in an article, to which reference has already been made, has set forth certain conditions which in his opinion must be met by an instrument for the measurement of pulp color. I should like to quote these requirements:

"1. It must be at least as sensitive, particularly to differences in saturation, as the skilled human eye is under the conditions of best seeing.

"2. Its standards must be reproducible at different times and in different laboratories.

"3. It must be fairly rapid; to be really satisfactory for routine work, the final results should be available within a minute.

"4. Allowance must be made for differences in the translucency and surface texture or finish of the samples.

"5. While not absolutely essential, it is very highly desirable that the results should be expressed in the monochromatic terms of dominant wave length, purity and brightness."

We regret that there is no time for the further discussion of color measurement, but the contributions which have been made should pave the way for a more thorough consideration of the subject in the near future.

Shall we now proceed with the remaining paper on the program by Dr. H. F. Lewis on the "Relative Stability or Permanence of Cotton and Wood Cellulose." Dr. Lewis.

H. F. Lewis Institute of Paper Chemistry, Appleton, Wis., presented his paper (See PAPER TRADE JOURNAL, Nov. 24, 1932).

D. E. Cable, U. S. Rubber Company, Passaic, N. J. I wonder if it would not be possible for Doctor Lewis to use gas such as sulphur dioxide in the test?

H. F. Lewis, Institute of Paper Chemistry, Appleton, Wis.: We have.

Hurlbut's Papermaker Gentleman

The Hurlbut Paper Company, of South Lee, Mass., has just published the first issue of a new periodical, "Hurlbut's Papermaker Gentleman," under the date of January, 1933, and edited by Ralph M. Snell, vice-president in charge of research and technical control, and formerly vice-president of the Paper Makers' Chemical Corporation.

Intended to be more than just a house organ, it is planned to make each issue an example of high-grade papers effectively used for different processes of printing, of tasteful and original typographic treatments, and to include actual samples of some of the new papers developed constantly at the Hurlbut mill.

Editorially, the periodical contains the first of an illustrated series of articles dealing with the history of paper making in the United States and specific news about the company's papers, agencies and policies.

Patent Granted on Lodding Doctor

A patent has been granted for the so called Lodding Doctor, which has been on the market for the last three and a half years. Application for same was made in June, 1929. The patent discloses the principle of feeding out the doctor blade step by step as it wears. A total of thirteen claims was allowed, ten of them dealing exclusively with the feeding out principle. Another very important disclosure of this patent is the principle of using a full floating doctor blade. Three of the claims were allowed in connection with the floating blade. This is officially described as follows:

In a doctor mechanism, the combination with a roll and a doctor blade pivotally mounted with one edge thereof bearing on the surface of said roll and its other edge supported against movement in one direction only, of a member for applying pressure between the edges of said blade in a direction opposite to the reactions set up along the edges of the blade, said pressure exerting member serving to flex the blade between its edges and seat its first mentioned edge on the surface of said roll.

Patent is granted to Frederick W. Lodding, Worcester, Massachusetts.

Finnish Exports of Paper Rises

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 4, 1933—Finnish exports of paper during the first 10 months of this year, latest period for which statistics are available, totaled 234,508 metric tons compared with 224,530 metric tons during the corresponding period in 1931, according to a report of the Commerce Department's paper division.

Exports of wrapping papers, with the exception of greaseproof papers, were about on a level with last year, while exports of news print show a rise from 156,577 tons to 164,043 tons. Writing paper exports were also larger, showing an increase from 1,937 tons to 2,051 tons.

Shipments of boards from Finland have also held up well, 1932 exports for the first ten months amounting to 46,643 metric tons compared with 36,559 tons in 1931.

TAPPI Lake States Section to Meet

The Lake States Section of the Technical Association of the Pulp and Paper Industry will hold its next meeting at the Conway Hotel, Appleton, Wis. on Tuesday evening, January 10.

Howard M. Cyr, chief of the fundamental metallurgical section, research division of the New Jersey Zinc Company, Palmerton, Pa. will read a paper on the "Use of Zinc Pigments in the Paper Industry."

C. D. DeMers of the Taylor Instrument Company, Rochester, N. Y. will read a paper on "Temperature Control of Ground Wood Pulp Grinders."

Hydrotectric Meeting

There will be a meeting of the Hydraulic Division of the A.S.M.E. at the Engineering Societies Building, New York, N. Y. on the evening of January 17. Carroll F. Merriam of the Pennsylvania Water and Power Company will talk on "Safe Harbor Development." This paper will cover the underlying principles of low head hydro development and coffer-damming.

M. H. Teaze of Hardy S. Ferguson & Co. and chairman of the TAPPI Heat and Power Committee will be chairman of the meeting and extends an invitation to TAPPI members to be present.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 31, 1932

CIGARETTE PAPER

American Tobacco Co., Carinthia, Southhampton, 200 cs.; Champagne Paper Corp., Majestic, Southampton, 40 cs.; American Tobacco Co., Majestic, Southampton, 100 cs.; American Tobacco Co., Collamer, Bordeaux, 550 cs.; Gluckman & Strauch, Collamer, Bordeaux, 1 cs.; De Manduit Paper Corp., Collamer, St. Nazaire, 240 cs.; Champagne Paper Corp., Collamer, St. Nazaire, 57 cs.

WALL PAPER

F. Blank, New York, Hamburg, 3 cs.; R. F. Downing & Co., New York, Hamburg, 1 cs.; Globe Shipping Co., New York, Hamburg, 2 bls.; Reitman Pilcer & Co., Kungsholm, Gothenburg, 2 cs.; F. J. Emmerich, Port Bowen, Liverpool, 12 bls.; Phoenix Shipping Co., Brazil Maru, Hamburg, 8 cs.

NEWS PRINT

Perkins Goodwin & Co., New York, Hamburg, 380 rolls; ——, New York, Hamburg, 386 rolls; Scott Paper Industries, Inc., Kungsholm, Gothenburg, 390 rolls.

PRINTING PAPER

Japan Paper Co., Carinthia, Southampton, 1 cs.; Martin & Bechtold, New York, Hamburg, 10 cs.; Keller Dorian Paper Co., Majestic, Southampton, 9 cs.; Keuffel & Esser Co., Brazil Maru, Hamburg, 24 rolls.

WRAPPING PAPER

D. E. Bordner, New York, Hamburg, 12 cs.; Coy Disbrow & Co., Pennland, Antwerp, 3 cs.; F. C. Strype, Pennland, Antwerp, 5 cs.; Standard Products Corp., Pennland, Antwerp, 1 roll; Wilkinson Grey & Co., Kungsholm, Gothenburg, 27 cs.; Yardley & Co., American Merchant London, 2 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Carinthia, Southampton, 4 cs.; H. Reeve Angel & Co., Inc., Majestic, Southampton, 2 cs., 40 bls.; H. Reeve Angel & Co., Inc., American Merchant, London, 2 cs.

DRAWING PAPER

Keuffel & Esser Co., Brazil Maru, Hamburg, 35 cs.

COLORED PAPER

——, Pennland, Antwerp, 2 cs.

COVER PAPER

International F'd'g Co., New York, Hamburg, 8 cs.

METAL COATED PAPER

K. Pauli Co., New York, Hamburg, 25 cs.; Globe Shipping Co., New York, Hamburg, 13 cs.; American Express Co., New York, Hamburg, 2 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Pennland, Antwerp, 6 cs.; Gevaert Co. of America, Pennland, Antwerp, 51 cs.

PHOTO PAPER

J. J. Gavin, Carinthia, Southampton, 6 cs.; J. J. Gavin, Majestic, Southampton, 1 cs.; American Express Co., New York, Hamburg, 2 cs.

DECALCOMANIA PAPER

Sellers Transportation Co., New York, Hamburg, 10 cs.; B. F. Drakenfeld & Co., Port Bowen, Liverpool, 4 cs. (duplex).

TISSUE PAPER

W. J. Byrnes, Carinthia, Southampton, 2 cs.; W. J. Byrnes, Majestic, Southampton, 3 cs.; M. Snedeker Corp., American Merchant, London, 1 cs.

WRITING PAPER

Titan Shipping Co., Majestic, Southampton, 7 cs.; ——, Majestic, Southampton, 2 cs.

STENCIL PAPER

Henschel Naeve & Co., New York, Hamburg, 3 cs.

CORRUGATED PAPER

Astoria Press, New York, Hamburg, 24 bls.

CARD BOARD

E. Dietzgen & Co., Carinthia, Southampton, 1 cs.

PAPER BOARD

Colmar Paper Corp., Pennland, Antwerp, 21 cs.

MISCELLANEOUS PAPER

Wedeman Godknecht & Lally, New York, Hamburg, 2 cs.; ——, New York, Hamburg, 20 bls.; Watch Tower Bible & Tract Society, New York, Hamburg, 2 cs.; Manufacturers Trust Co., H. Jaspar, Antwerp, 70 pkgs.; International F'd'g Co., H. Jaspar, Antwerp, 22 cs.; M. M. Cohen, Kungsholm, Gothenburg, 47 rolls, 25 bls.; The Borregaard Co., Inc., Kungsholm, Gothenburg, 102 bls., 356 rolls, 48 cs.; Steiner Paper Corp., Kungsholm, Gothenburg, 5 cs.

RAGS, BAGGINGS, ETC.

Chase National Bank, Carinthia, Southampton, 41 bls. rags; Keene & Arkus, Collamer, Bordeaux, 135 bls. rags; E. J. Keller Co., Inc., Collamer, ——, 94 bls. rags; E. J. Keller Co., Inc., Exochorda, ——, 77 bls. rags; ——, Exochorda, Alexandria, 67 bls. rags; J. Cohen Sons Co., Port Bowen, Liverpool, 14 bls. rags; Chase National Bank, Brazil Maru, Hamburg, 66 bls. rags.

GLUE STOCK, ETC.

——, New York, Hamburg, 200 bags hide glue; ——, New York, Hamburg, 258 bags bone glue.

CASEIN, ETC.

D. C. Andrews & Co., New York, Hamburg, 60 bags casein; ——, Canadian Challenger, Auckland, 224 cases caseinate.

OLD ROPE

Banco Coml. Italiane Trust Co., New York, Hamburg, 37 coils; ——, Marengo, Newcastle, 118 coils; E. J. Keller Co., Inc., Sommerville, ——, 25 bls.

WOOD PULP

Castle & Overton, Inc., New York, Hamburg, 1160 bls. wood pulp, 232 tons; Johaneson Wales & Sparre, Inc., Nordvard, Oslo, 4000 bls. chemical, 811 tons; Johaneson Wales & Sparre, Inc., Nordvard, Oslo, 1475 bls. sulphite, 299 tons; Mead Sales Co., Nordvard, Oslo, 250 bls. sulphite, 50 tons; Continental Bank Trust Co., Nordvard, Hernosand, 450 bls. sulphate, 75 tons, 900 bls. sulphite, 150 tons; ——, Nordvard, Hernosand, 1200 bls. sulphite, 200 tons; Price & Pierce, Ltd., Argosy, Hernosand, 930 bls. sulphite, 155 tons; J. Andersen & Co., Argosy, Hernosand, 450 bls. sulphate, 75 tons; Price & Pierce, Ltd., Argosy, Wallvik, 1000 bls. mechanical, 200 tons, 2700 bls. sulphite, 450 tons; Johaneson Wales & Sparre, Inc., Kungsholm, Gothenburg, 728 bls. chemical; J. Andersen & Co., Kungsholm, Gothenburg, 375 bls. sulphite; E. M. Sergeant & Co., Kungsholm, Gothenburg, 897 bls. kraft soda; Perkins Goodwin & Co., Kungsholm, Gothenburg, 153 bls. sulphate; Chase National Bank, Kungsholm, Gothenburg, 560 bls. sulphite; Castle & Overton, Inc., Black Heron, Rotterdam, 965 bls. wood pulp, 193 tons; E. J. Keller Co., Inc., American Importer, ——, 364 bls. wood pulp.

ALBANY IMPORTS

WEEK ENDING DECEMBER 31, 1932

Johaneson Wales & Sparre, Inc., Nordvard, Oslo, 10205 bls. sulphite, 1944 tons, 4200 bls. chemical, 853 tons; Bulkley Dunton & Co., Nordvard, ——, 900 bls. sulphate, 152 tons; Halifax Power & Pulp Co., Ltd., Dago, Sheet Harbor, 8003 bls. ground pulp, 1788 tons.

PORTLAND IMPORTS

WEEK ENDING DECEMBER 31, 1932

Continental Bank Trust Co., Nordvard, Hernosand, 3000 bls. sulphate, 500 tons, 1500 lbs. sulphite, 250 tons; Price & Pierce, Ltd., Argosy, Hernosand, 2400 bls. sulphite, 400 tons; E. M. Sergeant & Co., Argosy, Hernosand, 1200 bls. sulphite, 200 tons; J. Andersen & Co., Argosy, Hernosand, 6000 bls. sulphate, 1000 tons; Price & Pierce, Ltd., Argosy, Wallvik, 6000 bls. sulphite, 1000 tons.

BOSTON IMPORTS

WEEK ENDING DECEMBER 31, 1932

G. F. Malcolm, Inc., Port Bowen, Liverpool, 27 cs. tissue paper; E. J. Keller Co., Inc., Artigas, ——, 68 bls. bagging; E. J. Keller Co., Inc., Haimon, ——, 334 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 31, 1932

Johaneson Wales & Sparre, Inc., Nordvard, Oslo, 6600 bls. sulphite, 1117 tons; Continental Bank Trust Co., Nordvard, Sundsvall, 1350 bls. sulphite, 225 tons; E. J. Keller Co., Inc., Collamer, ——, 85 bls. rags; Keene & Arkus, Collamer, Bordeaux, 264 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 31, 1932

Chase National Bank, Collamer, Bordeaux, 288 bls. rags; Congoleum Nairn Co., Collamer, Bordeaux, 473 bls. rags; Congoleum Nairn Co., Collamer, St. Nazaire, 187 bls. rags.

NORFOLK IMPORTS

WEEK ENDING DECEMBER 31, 1932

De Manduit Paper Corp., Collamer, St. Nazaire, 725 cs. cigarette paper.

Sale of Imported Twine Discouraged

BOSTON, Mass., January 2, 1933—In view of the fact that the twine industry of the United States is threatened with the importation of a large quantity of cheap twine, particularly from Germany, which, because of the conditions of foreign exchange can be brought into this country at ruinous prices, all the twine merchants in New England, with the exception of one or two, have signed a pledge that they will stand behind the domestic manufacturers and will not buy, sell or distribute imported twines or cordage. The merchants have done this because of the employment situation.

In addition to this action by the merchants, the manufacturers are adopting a uniform label or marker to designate that the merchandise is made in this country. The twine committees of the National Paper Trade Association and of the New England Paper Merchants Association are cooperating with the manufacturers' committees in an effort to adopt a uniform and effective form of propaganda to discourage the sale of imported twine in this country. Last week the Hearst publications throughout the United States inaugurated a very extensive campaign to instill into the hearts of Americans the principle of buying merchandise made in America and have printed many editorials, commenting in regard to various items affected by the foreign competition in order to help the general cause.

Paper Men Granted Patents

CARTHAGE, N. Y., January 2, 1933—A patent on a shredding machine has been granted by the government to John J. Grieb, Dell W. Garvay and Allen J. Fritz, of this village, and manufacturing rights have been assigned to the Ryther & Pringle Company. The invention is said to contain a number of unique principles which are covered by the terms of the decree of exclusive rights.

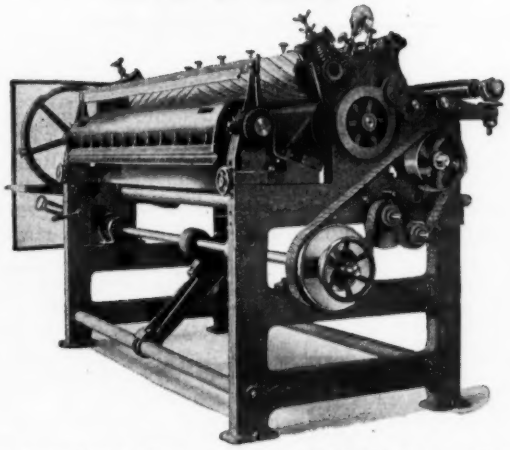
D. E. Griffith has also been granted a patent on a method for producing a paper or fiber can and rights to manufacture have been turned over to the Smith & Lewis Fibre Can Corporation, of Lowville. A number of claims for patentable features are allowed.

Timely Tips on How to Make a Million

Published in the best interests of their friends and subscribers by Roy Kellogg, M.S., F.A.G.S., C.C.O.H.H., and Janet Kellogg, A.B., M.T.A., C. A., N.N.A., "Twelve Timely Tips on How to Make a Million" is a cleverly written and illustrated brochure containing the results of a laborious investigation into the undertakings of certain prominent characters during the deceased New Economic Era. Readers are advised to secure a copy from R. S. Kellogg, secretary of the News Print Service Bureau, 342 Madison Avenue, New York, before the edition is exhausted.

MODEL 28

ROLLER BEARING CUTTER



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LAWRENCE, MASS.

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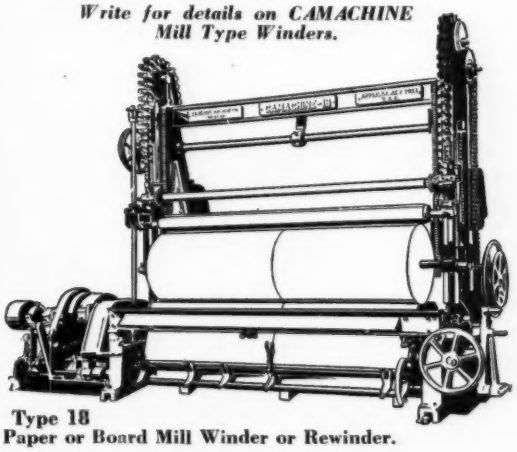
SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS.
CUTTER KNIVES, PATENT TOP SLITTERS.

LEVEL DRAW OF WEB

In CAMACHINES, as the roll builds up in diameter provision is made for keeping the winding shaft always parallel with the axis of the drums, also the riding roll parallel with same. This insures the formation of a perfectly cylindrical roll of paper which in turn insures a smooth level draw on the web. The absence of these provisions in old style winding mechanisms is a serious drawback to good roll winding.

Write for details on CAMACHINE Mill Type Winders.



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Paper or Board Mill Winder or Rewinder.

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PAPER WAXING MACHINERY

Three Widths—52" - 64" - 80"

LIGHT OR HEAVY COATING
WET OR DRY WAX
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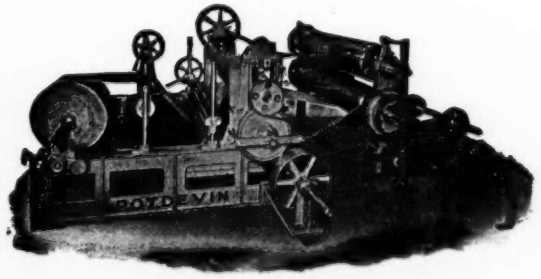

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WARREN IMPROVED CALENDER With flexible blades, Universal Adjustment and Control, Patented — DOCTORS

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SEND FOR BULLETINS—ASK FOR PRICES.

New York Market Review

Office of the PAPER TRADE JOURNAL.
Wednesday, January 4, 1933.

Trading in the local paper market was only moderately active during the past week. Demand for the various standard grades of paper was light, but should improve materially now that the holiday season has ended. Sales forces of the leading paper organizations are beginning a strenuous campaign for business and are generally optimistic.

The news print paper market continues to mark time. Production in the North American continent is being maintained in sufficient volume to take care of current requirements. No further developments in the merger negotiations have transpired. The price situation continues unsatisfactory.

Operations in the paper board mills have been curtailed, following the usual custom at this time of the year. The outlook for the future is considered fairly promising. No radical changes have been reported in the fine paper market. Tissues are moving slowly. The coarse paper market is quiet, with kraft wrapping paper going forward in moderate volume.

Mechanical Pulp

The ground wood pulp market is exhibiting a strong undertone. Domestic mechanical pulp is steady to firm, while foreign ground wood pulp prices have advanced. No. 1 imported moist mechanical pulp is now quoted at from $17 to $19 per ton; and dry at from $17 to $20, per ton, on dock, Atlantic ports.

Chemical Pulp

Conditions in the chemical pulp market are fairly satisfactory. While demand for the various grades of imported and domestic chemical pulp is listless, inquiries for future account are fairly numerous, some of which should materialize into good orders. Prices are generally steady and unaltered.

Old Rope and Bagging

The old rope market is practically unchanged. Little interest is being displayed at present by the paper mills in either domestic or imported old manila rope. Small mixed rope remains dull. Prices are spotty. The bagging market is quiet. Scrap and gunny bagging are only in moderate request. Roofing bagging is fairly steady.

Rags

Some improvement is anticipated in the domestic rag market now that the festive season is over and the inventory period is drawing to a close. The cotton rag section has been quiet of late. Offerings of roofing grades are rather limited, with the result that quotations are firm. The position of the imported rag market is unchanged.

Waste Paper

The bright particular feature of the paper stock market is the continued strength of hard white envelope cuttings, supplies of which are scarce and prices firm. Other of the better grades of waste paper are steady. Book stock continues quiet. Board mill demand for the lower grades of paper stock has slackened, due to the holidays and the inventory period, but should improve in the near future.

Twine

Demand for the various grades of paper twine is fairly persistent for the season of the year, although most of the business transacted is along routine lines. In some quarters, the outlook for the future is considered fairly promising. Despite intense competition for desirable orders, quotations are generally well maintained.

Georgia-Carolina Paper Co. Burned

AUGUSTA, Ga., December 28, 1932—Fire reaped damages estimated at $55,000 at the Georgia-Carolina Paper Company Tuesday night. The greatest damage was to the stock of the company, which was practically a total loss, and was valued at $45,000 by J. T. Bothwell, Jr., owner of the company.

The interior and roof of the building, located at the corner of Eleventh and Fenwick Streets, was completely destroyed, and damage to the building was estimated at $10,000 by Fire Chief John B. Kennedy. The building occupied by the paper company is a part of a long series of warehouses belonging to George S. Lombard.

It was learned that the stock of goods was only partially covered by insurance.

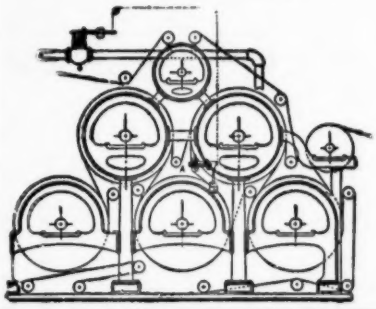
The alarm was sounded at 1:50 A.M. and when firemen arrived on the scene, flames had already burst through the roof of the building, and had gained such headway that for a time firemen thought it would be impossible to keep the fire from spreading to other parts of the warehouse. The warehouse adjoining the paper company's quarters, it was said, is not occupied and firemen were successful in keeping the fire from spreading.

Gatineau Power Co. Makes New High Record

OTTAWA, December 31, 1932—The Gatineau Power Company and subsidiary companies have made a new high output record for a single day by producing 9,864,428 kilowatt hours of electric energy. The previous high record was made on December 15, 1931, when 9,744,188 kilowatt hours were generated. In 1930 the high point for the year was reached on November 6 with the production of 9,027,254 kilowatt hours.

In the last published earnings statement, for the twelve months ended September 30, Canadian Hydro-Electric Corporation, Limited, of which Gatineau Power Company is the most important subsidiary, reported that consolidated net revenue available for dividends was $2,785,538, or $22.28 a share on the 6 per cent preferred stock, compared with $2,018,296, or $16.15 a share, in the twelve months ended September 30, 1931.

The Pickles Drying Regulator



WE ARE SAFE IN OUR PROPOSITION

YOU'LL MAKE NO MISTAKE IN ACCEPTING IT

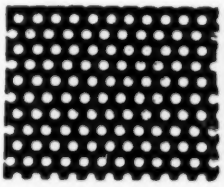
Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES Buckland, Conn.

Perforated Metal Screens

For Pulp and Paper Mills



STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

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SUPERIOR CHEMICALS
Quantity production is absolutely necessary if uniformity and dependability in paper-making chemicals are to be maintained. Paper Makers Chemical Corporation is the world's largest producer, a major reason why PMC chemicals excel in reliability.
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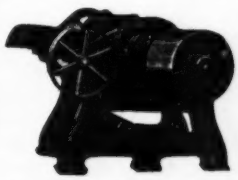
Plants in all large paper-making areas

GIANT

RAGS — BURLAP
BAGGING — ROPE

JUTE BUTTS, MAGAZINES, CATALOGS OLD PAPERS, THREAD WASTE AND ALL GRADES OF RAGS CUT QUICKLY AND EFFICIENTLY WITH THE



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This is the GIANT 2A CUTTER WITH A CAPACITY OF 3000 lbs. PER HOUR GIANT RAG CUTTERS HAVE CAPACITIES OF FROM 1 to 5 tons per hour.

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BLEACH TANK WHITE

Formerly known as DAIRY WHITE.

Use BLEACH TANK WHITE as an inner coating for metal elbows and pipe connections in wood pipe lines. Make unnecessary the replacement of these metal parts with acid resisting steels, also coat the wooden pipe line to stop decay.

Ideal for coating the metal parts of agitators and parts in bleaching tanks, and concrete sulphite tanks.

Send for free sample can—sufficient for coating good-size surface.

SLEIGHT BITUMINOUS PRODUCTS COMPANY

BALTIMORE, MARYLAND

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, January 4, 1933.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder is moderately active. The contract movement is mainly seasonal. Prices are generally holding to previously quoted levels. Bleaching powder is selling at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues quiet. Domestic standard ground is still quoted at 7 cents and finely ground at 8 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Contract shipments of caustic soda are moving regularly. Prices remain unchanged. Solid caustic soda is quoted at from $2.55 to $2.60; while the flake and the ground are selling at from $2.95 to $3.00 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is practically marking time. Prices are generally holding to schedule. Imported china clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Some improvement was noticed in the chlorine market. Contract shipments are going forward in good volume. Prices are steady to firm. Chlorine is now quoted at $1.65 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market continues fairly steady. The grades of gum rosin used in the paper mills are quoted at from $3.60 to $3.85 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.60 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Conditions in the salt cake market are fairly satisfactory. Salt cake is still quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works; while foreign salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market is listless, due to the usual holiday lull. Shipments against contract are moving slowly. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.30; and in barrels, $1.43.

STARCH.—Trading in the starch market is light at present. The contract movement is moderate. Prices are holding to schedule. Special paper making starch is quoted at $2.19 per 100 pounds, in bags; and at $2.46 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—No radical changes were reported in the sulphate of alumina market. Prices remain unchanged. Commercial grades are quoted at from $1.25 to $1.46; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC—Most of the business transacted in the talc market was along routine lines. Prices remain unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	4.50	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	4.25	@	5.00
M. F.	3.75	@	4.25
Coated and Enamel	5.00	@	9.00
Lithograph	5.00	@	9.00
Tissues—Per Ream—			
White No. 1	.50	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.55	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¾	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¼	@	—

(Delivered New York)

News, per ton—			
Roll, contract	45.00	@	—
Rolls, spot	45.00	@	—
Sheets	50.00	@	—
Side Runs	30.00	@	35.00
Kraft—			
No. 1 Domestic	4.50	@	4.75
No. 2 Domestic	2.37½	@	2.75
Southern	2.25	@	2.50
Imported	2.75	@	3.50
Boards per ton—			
News	30.00	@	32.50
Straw	29.50	@	31.50
Chip	24.50	@	30.00
Binders' Boards	62.00	@	70.00
Kraft Liner	40.00	@	45.00
Standard 85 Test			
Jute Liner	27.00	@	29.50
Sgl. Mla. Ll. Chip	37.50	@	40.00

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	17.00	@	19.00
Dry	17.00	@	20.00

(F. o. b. Mill)

No. 1 Domestic	16.00	@	22.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	1.80	@	2.25
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.35	@	1.60
Mitscherlich unbleached	1.55	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.25	@	1.40
No. 2 Kraft	1.10	@	1.15
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	1.75	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.40	@	1.65
Mitscherlich unbleached	2.00	@	2.55
Kraft (Domestic)	1.25	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.00	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	4.00	@	4.25
New White, No. 2	3.00	@	3.25
Silesias No. 1	3.75	@	4.00
New Unbleached	5.50	@	6.00
New Soft Blacks	2.75	@	3.00
Blue Overall	3.00	@	3.50
Fancy	1.50	@	1.75
Washables	1.15	@	1.40
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.00	@	3.25
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@	1.50
New Mixed Cuttings	1.60	@	1.75
New Light Silesias	3.00	@	3.25
Light Flannelettes	2.50	@	2.75
Unbleached Cuttings	4.75	@	5.25
New White Cuttings	4.00	@	4.25
New Light Oxfords	3.00	@	3.25
New Light Prints	1.85	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	3.50	@	3.75
No. 2 White Cotton	2.75	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.80	@	2.00
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.80	@	1.90
German Blue Linens	1.70	@	1.80
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	.90	@	1.00
Domestic	1.00	@	1.10
Wool Tares, light	.70	@	.80
Wool Tares, heavy	.70	@	.80
Bright Bagging	.70	@	.75
Small Mixed Rope	.50	@	.60
Manila Rope—			
Foreign	1.35	@	1.40
Domestic	1.40	@	1.50
New Burlap Cut	1.00	@	1.50
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	1.70	@	1.80
Ordinary Hard White No. 1	1.55	@	1.65
Hard White No. 2	1.30	@	1.40
Soft White No. 1	1.40	@	1.50
Flat Stock—			
Stitchless	.55	@	.65
Overissue Mag.	.55	@	.65
Solid Flat Book	.50	@	.55
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.75
Ledger Stock	.45	@	.55
New B. B. Chips	.20	@	.25
Manilas—			
New Env. Cut	1.25	@	1.35
New Cuttings	1.00	@	1.05
Extra No. 1 old	.80	@	.90
Print	.35	@	.40
Bogus Wrapper	.30	@	.35
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.75	@	.85
News—			
No. 1 White News	1.00	@	1.05
Strictly Overissue	.50	@	.55
Strictly Folded	.35	@	.40
No. 1 Mixed Paper	.17½	@	.22½

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A FIRST REQUISITE

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Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

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"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

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COATING CLAY · HIGHEST GRADE FILLING CLAY

The Clay of Uniformity

AMERICAN MADE
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Edgar Clays are the Result of more than fifty years' experience in washing clay — used by Leading Paper Mills.

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EDGAR BROTHERS COMPANY
50 CHURCH STREET NEW YORK CITY

Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Pl—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.10¼	@	.10¾
Fine Tube Rope—			
4-ply	.12½	@	.12¾
3-ply	.13¼	@	.13¾
2-ply	.14¾	@	.14¾
Paper Makers Twine			
Balls	.09½	@	.11¼
Box Twine, 2-3 ply	.11¼	@	.12¼
Jute Rope	.09	@	.10
White Hemp	.12¼	@	.12¾
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Bag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	45.00	@	—
Sheets	50.00	@	—
Boards, per ton—			
Plain Chip	27.50	@	—
Solid News	30.00	@	—
Manila Lined Chip	37.50	@	—
Patent coated	47.50	@	—
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.55	@	.60
Solid Books	.45	@	.50
Blanks	1.00	@	1.05
Krafts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.40
Overissue News	.45	@	.50
Old Newspapers—			
No. 1	.45	@	.50
Mixed Papers—			
No. 1	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.02¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	46.00	@	—
Straw Board	32.00	@	—
News Board	30.00	@	—
Chip Board	30.00	@	—
Wood Pulp Board	70.00	@	80.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1 50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.60	@	1.70
No. 2 Hard White	1.50	@	1.60
No. 1 Soft White	1.40	@	1.45
No. 2 Soft White	1.10	@	1.15
No. 1 Mixed	.50	@	.60
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.65	@	.70
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.10	@	1.15
No. 1 Old Manila	.60	@	.65
Print Manila	.40	@	.45
Container Manila	.35	@	.40
Old Kraft	.85	@	.90
Common Paper	.20	@	.25
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.25	@	.30
Binders Board, Chip	.25	@	.30
Corrugated Board	.35	@	.45
Overissue News	.45	@	.55
Old Newspaper	.30	@	.35

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	—	@	.04¾
No. 2 Kraft	—	@	.02¾
(F. o. b. Boston)			
Southern Kraft	—	@	.02½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	44.50	@	—
Straw Board, rolls.009	—	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	—	@	30.00
Chip Board	27.50	@	—
Chip Board (Creasing)	27.50	@	30.00
Single Manila Lined Chip	—	@	37.50
Single White, Patent Coated News Board—			
Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	1.50	@	1.65
No. 1 Old Manila	.50	@	.60
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.55	@	.65
White Blank News	.80	@	.85
No. 1 Kraft	.70	@	.95
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.30	@	.35
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.20	@	.25
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.50	@	.75
Manila Rope—			
Foreign	1.25	@	1.45
Domestic	—	@	1.60
Transmission Rope	—	@	.90
Mixed Strings	.25	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.10
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.55	@	.65
No. 1 Scrap Burlap	.75	@	.80
Scrap Sisal	.90	@	—
Scrap Sisal for shredding	—	@	.90
Wool Tares, heavy	.65	@	.75
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	2.00	@	—
Heavy Baling Bagging	.90	@	1.10
Paper Mill Bagging	.50	@	.60
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.75	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.03¾	@	.04
New White No. 2	.02¾	@	.03¼
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.02¾
New Unbleached	.05	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¾	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.35	@	.40
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.50	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.75
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 4 M. F. (carloads)	5.25	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	2.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

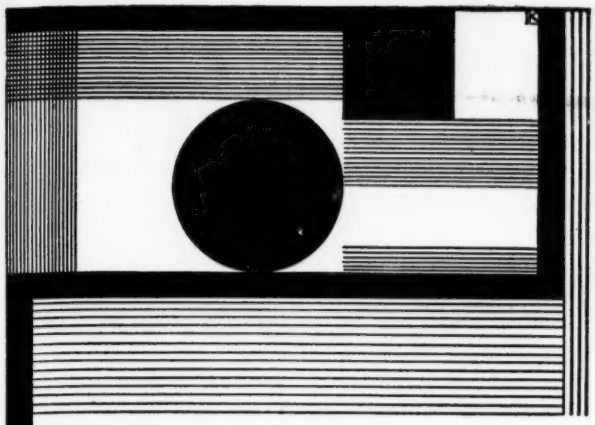
Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06½



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